THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXI. SATURDAY, OCTOBER 29, 1892. No. 18.

ORIGINAL ARTICLES.

THE TREATMENT OF CLUB-FOOT.[1]

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THE methods employed in the treatment of club-foot are almost as numerous as those who treat it. It is the more comprehensible on this account that all methods at present employed are really modifications and combinations of others gone before. Plaster-of-Paris, soluble glass, splints, orthopedic appliances of more or less complicated character, surgical procedures involving operations, subcutaneous or open—these have all been used and are being used in various combinations, and there can be no doubt that club-foot can be often successfully treated by almost any of them. As young men, however, there will come to some of us, at least, a time when we shall have to select a method from the immense number with which to treat a given case, and it is with this in view that I present this paper. I have had the opportunity in the past few months of seeing quite a large number of cases in the clinic of Professor Wolff—cases freshly treated, which had presented themselves during the treatment and after its discontinuance—and I desire to convey to you the impressions that these cases made upon me.

It might be well to cast a glance at the principles on which the treatment is founded. Every case of *true* club-foot is dependent upon abnormal shape of the foot skeleton, and this is as true of the congenital as of the acquired forms; the changes of the soft parts are of secondary nature. The changes found in the bones of the foot never involve one bone alone; all are involved to a greater or less degree, and especially is this true of the tarsal bones.[2] Julius Wolff has shown[3] that the shape of every bone, as well as its internal architecture, are the expressions of the static demands made upon it; further, that the internal architecture and external form always correspond with one another. He has also shown that we are no longer to consider the bones as mere levers, of an inert material, but as living tissues, and as capable of accommodating themselves to different changes as are our other tissues. Where weight is to be borne, where strain is to be sustained, bone-tissue is laid down; and on the other hand, where bone-tissue is no longer needed because of changed statical conditions, it disappears. Thus it is, as Wolff has pointed out,[1] that the hump left on the dorsum pedis by the correction of a club-foot disappears spontaneously, without making pressure upon it with the dressing.

As in so many other conditions, one principal task is to merely modify the direction of constantly acting forces and maintain them so for a sufficient period of time; Nature will do the rest. We are not to be satisfied with making a foot appear normal; if the bones have not changed their shape, if they do not stand in proper relation to the extremity whose weight they are bearing, our treatment will be in vain, for the patient will have a recurrence of his deformity soon after discarding our appliance. On the other hand, if our treatment has been successful, if we have the bones of the foot changed to such a form as is normal for their function, there can be no recurrence; for in those lines in which pressure or tension occurs, Nature has laid down bone-trabeculæ of sufficient strength, and she has given the bone a corresponding outward form.

It is not so simple a process, this change in the form of the bones, as Volkmann's theory would make it; atrophy from pressure, and growth in the direction of least resistance do not explain it; rather the opposite is true.[2] When a club-foot recurs after treatment, we may assume that it was not entirely cured, for were it so the use of the limb would tend toward making its new form permanent instead of the contrary. I must except from this last statement the paralytic club-foot; the prognosis here depends entirely upon the paralysis, or the measures taken to counteract it.

Our indications for treatment, then, are really two. First, we must bring the foot into proper relation with the rest of the extremity and the body; and secondly, we must retain it there in *functional activity* for a sufficiently long time to enable the bones to undergo the necessary metamorphosis as a result of their function. From these indications I think it will be apparent that any form of appliance, to answer our purpose, must be of a more or less permanent character. All shoes and splints which

[1] Read before the Association of American Physicians, in Berlin, June 30, 1892.

[2] Hoffa: Lehrb. der Orthop. Klin., 1891.

[3] Gesetz der Transform. der Knochen. Berlin, 1892.

[1] "Ueber d. Ursachen u. d. Behandl. d. Deformitäten, insbes. der Klumpfusses, Berl. klin. Wochenschr., 1885, No. 12.

[2] Wolff, quoted by Hoffa, loc. cit., p. 20 et seq.

are to be taken off at times, such as during sleep, fall short of our demands. We wish the weight of the body, which is our curative force, to work constantly and always in the same lines. The requirements which we make are met by no other material as well as by the plaster dressing if properly applied, and to properly apply it for the treatment of club-foot means merely the mastery of certain details which should be not at all difficult for any physician capable of properly dressing a fracture. Plaster-of-Paris in the treatment of club-foot is by no means new, but it is the development of minute details in its application, and proper attention to all of them, which make it a method, and the success that follows is in proportion to the care and skill used in treatment, rather than to the degree of deformity. A plaster dressing may sometimes be properly applied in one or two sittings; not infrequently four or five are required, and occasionally several more. The method, therefore, calls for the greatest patience on the part of physician and patient; but few physicians will begrudge this when once they have used it properly, and still fewer patients with the more severe forms of club-foot will spend much time in choosing between a plaster treatment, that is perhaps tedious for a while, and one of the bloody operations.

The question of tenotomy must in each case be decided for itself. Quite a number of cases of club-foot can be treated without any operation upon the soft parts; these are usually the slight deformities in very young children. In those cases, usually of more marked deformity, in which the tendo Achillis and the aponeurosis plantaris seem to offer any considerable resistance to the correction, one or both should be incised subcutaneously in the usual manner. Rarely does it become necessary to divide any of the other tendons of the foot, the tibialis posticus, or the flexors. The tenotomy having been made, it is advisable to apply aseptic dressings to the wounds and postpone the application of the plaster for two or three days.

We now come to the most important part of our subject—the technique of the plaster dressing for club-foot. Speaking in general terms there are two methods of treatment by plaster dressing, and these are radically opposed to one another. König's method[1] consists essentially of two steps: the redressement and the application of the plaster. The forcible redressement is the leading idea of the method, as König describes it, and it is his intention from the start to tear ligaments, to bend or even break bones. He himself says that the difficulties do not lie in the degree of deformity, but rather in the physical state of the bones and the firmness of the ligaments.

[1] König: Lehrb. der spec. Chirurgie, Bd. iii, Berlin, 1889.

The redressement is made as follows: The patient, having been anesthetized, is placed on his side and an assistant fixes the knee firmly. The operator then places the most prominent convex portion of the foot (usually the region of the calcaneo-cuboidal joint) upon a suitably protected wooden fulcrum and seeks, with one hand grasping the heel and the other holding the anterior part of the foot, to use the weight of his body in forcibly correcting the deformity. According to König, in order that the procedure shall be of avail a crackling sound should be heard. The external convexity of the tarsus having been thus reduced, the foot is forcibly brought into dorsal flexion and abduction. König advises against doing too much in one sitting, and says that the entire correction usually occupies two or three operations. After each sitting a plaster dressing, with a cotton substratum, is applied; this dressing is to accomplish nothing further than holding the ground obtained by the forcible redressement. "Elevation and all other precautions against considerable swelling should not be neglected." The sittings are repeated at intervals of two or three weeks. In many cases, principally in adults, the force required is too great for the hand, and various instruments have been devised for making the correction. König recommends Bradford's instrument.

The method of Wolff differs from this radically; instead of purposely using sufficient force to tear ligaments and crush bones, instead of completing the redressement in a small number of sittings, just the opposite is done. The force used should never be sufficient to causing gross solutions of continuity in the tissues, and the number of sittings should be sufficiently great to accomplish this. What Wolff attempts to produce by his redressement is subluxations of the tarsal bones; the form of the bones is not to be changed by the operation itself; this is essential. The bones are to be changed by the change of function, by being placed in different relations with one another and with the extremity. The following is the method of applying the dressing as it is done at Wolff's clinic:

Excepting for very slight degrees of club-foot and in very young children, anesthesia is necessary. The patient, anesthetized, is placed on his back upon the table, and, with a blue pencil, the middle of the patella is marked. An assistant fixes the knee in such a way as not to hide the patella. The operator now seizes the anterior part of the foot with one hand and, placing his other hand upon the heel, seeks to correct the deformity by first twisting the foot outward as far as possible, pronating it, then making dorsal flexion, and finally abducting the front part of the foot by bringing the heel toward the median line of the body.

Having thus secured the foot in its proper position, or at least as nearly so as can be done in this one sitting without the use of too much force, the hands of the operator are carefully replaced by those of another assistant, holding the ground gained as nearly as possible. The operator then takes strips of rubber adhesive plaster, about one inch wide, and uses them to hold the foot in position. The first strip begins on the upper surface of the foot close to its inner edge and posterior to the ball of the great toe; it is then carried across the sole, up the outer side of the foot and a short distance up the leg without making much of a spiral around it. The second strip is placed anterior to this in like manner; the third strip begins at the ball of the great toe, and a fourth strip runs along the base of the toes. A greater or less number of strips than this may be required, according to the size of the foot and the resistance offered by it.

The two assistants now raise the limb from the table, the one still firmly fixing the knee, the other holding the foot by the toes, and the operator pads the foot and leg as evenly as possible with cotton up to the tibial tuberosity. With plaster bandages that are not too wide, a smooth dressing is applied, encasing the foot and leg; the tips of the toes are left uncovered, excepting the great toe; this is almost entirely covered in. The greatest care must be taken not to make the dressing too tight, and to make it as light as is compatible with strength.

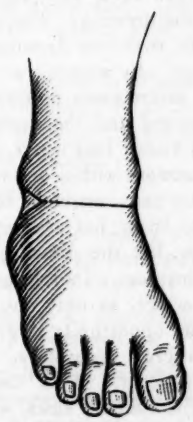
As soon as the bandage has been applied the operator seeks to correct the deformity as much as possible; the assistant with one hand pushes the heel toward the middle line, and with his other hand presses the outer edge of the foot upward. The foot is thus held in position until the plaster is quite firmly set. If the foot is in proper position, a sagittal plane passing from the anterior superior iliac spine through the mark in the patella and through the center of the ankle-joint must strike several centimeters inside of the tip of the great toe.

Two fenestra are now cut in the bandage as a matter of routine. Experience has shown that with a dressing thus applied two points are especially liable to decubitus: one point is the external surface of the ankle-joint, the other the internal surface of the great toe, and especially at the metatarsophalangeal articulation. The external side of the ankle-joint, before a convex surface, has been converted by the redressement into a sharp angle, and there is now here a superfluous amount of skin; into this angle a spur of plaster bandage projects. Over this an elliptical fenestrum is made, and this is also done at the inner side of the great toe, but the end of the toe should always be left covered, as this is one of the strong places in the dressing. That the dressing shall be considered satisfactory requires that the toes lie perfectly naturally beside one another and that the middle phalanges of the outer four toes be uncovered; to accomplish this is by no means the simplest task of the treatment and it not seldom requires considerable cutting and patching before entire satisfaction is obtained. However, too much time can scarcely be spent upon this part of the dressing, as it cannot possibly be comfortable to the patient unless the toes lie properly. Further alterations at the toes can usually be undertaken on those days on which no redressement is made.

Some pain is usually complained of after awakening from the narcosis and the patient often fails to sleep the first night, but unless the redressement has been carried too far in this one sitting the pain is not excessive. If pain is still present on the next day a fenestrum may be cut out at the painful spot. Otherwise the dressing is left undisturbed until the next sitting.

The graduated redressement, the correction of the deformity in several sittings, without causing anatomic lesions other than altering the relations of parts to one another, is the characteristic of Wolff's method; when this is accomplished, by making repeated alterations in the same plaster dressing in the way to be described, it constitutes the so-called "Ettappenverband." The second sitting may, then, occur in several days, usually on the second or third, sometimes not until the fourth. It is proceeded with as follows: With a large sharp knife a large, wedge-shaped piece is cut from the dressing on the outer side of the ankle-joint, and the ends of this continued in a line around the joint. (Fig. 1.) This is cut through to the cotton padding and

FIG. 1.



the dressing is now in two separate pieces, and while the wedge-shaped defect in the plaster allows the further correction, the foot cannot slip back into its

old position; great care must be taken not to make the linear cut too near the heel, lest the foot be able to slip in the dressing and thus defeat our object and make a completely new dressing necessary. An assistant grasps the upper section of the dressing, drawing it away from the lower, at the same time being careful not to allow a rotation of the leg in the dressing; the operator then corrects the deformity still more by moving the foot encased in the lower piece and the dressing is fixed in its new position by an additional plaster bandage. Care must be taken lest a fold of skin be caught between the two pieces of the dressing when brought together. If a very large correction is still to be made anesthetics may be necessary; most often they are not.

In this way the same dressing is altered a sufficient number of times until the patient stands in his dressing with the foot in satisfactory position, and satisfactory position means that the foot shall be slightly pronated, that it shall be dorsally flexed, abducted, that the toes shall lie normally beside one another, and that the patient shall be free from pain. It is a fundamental rule of the treatment that whenever pain is complained of a window shall be cut out at the painful spot. In infants this has often its difficulties, of course, but the bandage should rather be removed entirely than the risk of decubitus be run. When the position of the foot is satisfactory we are ready to put the finishing touches on the dressing: First, all fenestra are covered over with plaster bandage. When this is hard the plaster dressing is pared off wherever thicker than necessary and is made as seemly as possible. Strips of pine shaving are now glued on to the dressing in order to strengthen it, and these strips are held by crinoline bandage painted over with carpenter's glue. When the glue is hardened, a very light soluble-glass bandage covers the dressing. The patient now has shoes made to fit over the dressings and starts to walk immediately. By working at the feet alternately the most severe cases of double-sided club-foot can be corrected and the patients be walking in the dressings within four weeks at most, and in cases easy of treatment within one week.

The patients are now instructed to work as much as is agreeable to them, but are kept under occasional supervision, lest the dressing weaken or the foot change its position. In this case it is best to make a new bandage, as only one sitting will be required, and an opportunity is given to measure the degree of progress accurately. This does not, however, usually occur. With the exception of very severe and intractable cases, when no mishap occurs to the dressing, the patients are cured when it is taken off. The length of time during which the dressing must be worn varies exceedingly, of course—from a few weeks to a year, according to the age of the patient rather than to the degree of deformity. When the dressing is finally taken off, a course of massage, bathing in hot water, and passive movements, is indicated.

What shall be considered a satisfactory result in the treatment of club-foot? If after the patient has had the benefit of massage, passive movement, and after he has become accustomed to walking without the dressing, if he walks with the sole fully touching the ground, as it normally should, if he is able to dorsally flex the foot and is able to pronate to some extent, he may be pronounced cured, and he will not have a recurrence. If the patient is unable to fulfil these requirements, or any one of them, there is always the possibility of recurrence, because there has never been a cure and the treatment should be continued accordingly.

This is Wolff's method, and in his clinic all cases of club-foot are treated in this way. The congenital club-foot of infants but a few weeks old, as well as that of adults, is treated thus and with results remarkably satisfactory. That forcible redressement, in the sense that König uses it; that the various operations, such as Phelps's, the wedge excisions, enucleations of the talus or other bones are necessary for the cure of even extreme cases of club-foot is boldly denied by Wolff, and in proof he offers a series of cases which upon careful examination will convince the most skeptical. The difference in the two methods of treatment by plaster is nowhere better demonstrated than by the fact that whereas König advises the sittings to be repeated at intervals of two or three weeks, Wolff repeats them at intervals of as many days; that while König feels bound to advise elevation of the limb and other precautions against swelling, Wolff's patients are able to stand in the dressing the day after its application.

The case[1] which Professor Wolff has kindly permitted me to show you this evening demonstrates admirably the possibilities of the method and the permanency of the result. The patient, now twenty-eight years of age, was treated eight years ago, and the plaster cast which I present will convince you that his deformity was of the severest type. Although this method of treating club-foot was not yet fully developed, and although the deformity was corrected more rapidly and with more violence than was necessary, I think there is no doubt in your minds that the result is ideal. This patient was twenty years of age when the treatment was instituted, and Wolff has demonstrated in his communications on the subject that a very much greater age by no means places the result in jeopardy.[2]

[1] Case of "Gerstmann" Langenbeck's Archiv, Bd. xxxiii, Heft 1.

[2] *E.g.*, cases described in Berl. klin. Wochenschr., 1889, No. 8.

Lastly, in order to inform you more accurately how a case is handled, I shall mention the notes in the case of a boy, nine years of age, of whose right leg

FIG. 2.

and foot I present a cast. (Fig. 2.) The condition was congenital and almost the same in both feet.

May 24. The tendo Achillis and the plantar fascia of both feet were incised subcutaneously.
27th. Plaster dressing on right foot.
31st. Plaster dressing on left foot.
June 4. Redressement of right foot.
One week's suspension of treatment because of the Surgical Congress.
14th. Redressement of left foot.
15th. Redressement of right side.
17th. Redressement of left side.
21st. Redressement of left side.
26th. Discharged from the clinic, after shoes had been made and had been worn for a day and found perfectly comfortable. The treatment embraced really three weeks, and might have been done in less time. On the days intervening between those mentioned some improvement was usually made, straightening the toes, making or closing a fenestrum. The patient left the clinic able to walk with great ease, and I will ask you to believe me when I say that the feet were in as splendid position as could be desired. I am, unfortunately, not able to show the patient himself, but from what I have seen I feel confident that in six months he will be entirely relieved of his deformity.[1] Such feet as these are certainly of the most severe form.

The most difficult cases to treat by this method seem really to be cases in infants with very short, fat feet; difficult because they must be handled with great tenderness and because it often requires the greatest patience until a dressing is secured which holds the foot in the desired position. Whether the club-feet of very young infants should be treated with plaster dressing I regard as still an open question, in view of the difficulty of applying an efficient dressing and in recognition of the great good often to be accomplished by passive movements alone. If the latter have been unsuccessfully tried the case is still amenable to the treatment by plaster dressing.

It occasionally happens that some time after the dressings have been left off, the foot again shows a tendency toward supination. When this occurs, we are to blame; the dressings have been removed too soon, but an easy remedy is the application of another dressing for a time; as already remarked, if the club-foot has been *cured* it will not recur.

That no anatomic lesions of consequence occur during the treatment by this method is evidenced by the fact that the patients can all bear their weight upon the extremity the day after application of the dressing; had bones been fractured, had ligaments been torn, they would scarcely be in a position to do this. The dressing does not incommode in the beginning more than would a new shoe; afterward the patients grow perfectly accustomed to it.

In conclusion, I desire to express my deep sense of obligation to Professor Wolff for his very kind assistance in my study of the subject, and for the use of his clinical material.

BERLIN, JULY 12, 1892.

REPORT OF A CASE OF LARGE INTRA-CRANIAL TUMOR (WEIGHT, FIVE OUNCES) COMPRESSING THE LEFT FRONTAL LOBE.[2]

BY WILLIAM H. MORRISON, M.D.,
OF HOLMESBURG, PA.

I REGRET to say that the specimen of intra-cranial tumor which I present to-night is mainly of pathologic interest. A study of the case from which

[1] The patient reported at the clinic several days ago, and is walking without any pain or inconvenience whatever.

[2] Read before the Philadelphia Neurological Society, October 24, 1892.

it was removed teaches little in regard to symptomatology, and points out few indications for treatment. It adds another to the long list of cases already reported of large lesions of the frontal lobes without symptoms. The patient was under my care for a short time several years ago, and again for two days before his death, but in the intervening period I had no opportunity of studying his condition. He was under treatment for short periods by various regular and irregular practitioners, and at one time spent six weeks in the Pennsylvania Hospital, but during the two years preceding death he was subjected to no scientific study. This is unfortunate, for doubtless a careful study of this patient would have thrown some light upon these obscure cases, and have helped to give us aid in the recognition of lesions of this part of the brain. The history, as I shall give it, is made up principally from the statements of his friends and from the notes in the case-book of the Pennsylvania Hospital.

A. C., colored, about forty years of age, came under my observation in April, 1886. At this time he was a coachman by occupation, but had been in the army and had also served as a sailor, and was said to have suffered shipwreck on one or two occasions. He complained of pains in the head, which I attributed to localized syphilitic meningitis, and placed him upon potassium iodide. I saw him three or four times in the next few weeks, and then he passed from my observation and was not seen again until two days before death. In the summer of 1888 he had an epileptiform convulsion, which was the only convulsion in the history of the case. The pains in the head returned and gradually increased in severity, and were especially marked on stooping. In August, 1889, he gave up his work, but for a month before this his friends had noticed that his speech was slower than usual. Shortly after quitting work his eyesight began to fail, and soon he was unable to recognize persons or objects at a short distance from him. The pain seemed to be rather in the occipital region, although on stooping pain would be felt in the frontal region. During the last six or nine months of the history the pain was not so severe, and at no time does it seem to have been a marked symptom. A few months after quitting work he was admitted to the Pennsylvania Hospital. The notes of the case in the record-book of that institution are as follows:

"A. C., colored, coachman. Admitted December 9, 1889. Discharged January 20, 1890. Diagnosis, neuro-retinitis.

"Mother and father died of old age; other members of the family living and healthy. He says that he was never sick before. There is no venereal history. The present sickness began eight months ago, when he says that he became stiff all over, entirely preventing him from getting about. This cleared up and he began to have some frontal headache. Four months ago he began to lose his eyesight gradually. The headache continued. He had chills one year ago, but has had no return of them. He never had any weakness in the arms or legs. There has been no other pain, nor has there been loss in weight.

"On admission he is found to be a large, well-nourished man, the temperature 101°, pulse 102, respirations 26, the tongue large, flabby, and coated white; the breath offensive. There is no cough. He has now almost lost sight, but can tell day from night. He says that if he looks in one direction for some time he can faintly outline the object. The tongue is protruded straight. Hearing, taste, and smell seem natural. The fingers when extended seem steady. There is decided mental hebetude, and when asked a question it takes him a long time to formulate an answer. His memory has been steadily failing and is now quite bad. No anesthesia can be detected. He says that he never received any injury to the head. He lies quietly in bed, apparently uninterested in what is going on about him.

"The heart sounds, as heard at the apex, are clear and sharp, but heard at the aortic cartilage, the first sound is indistinct. No murmur can be detected. The lungs and abdominal organs are normal.

"TREATMENT. Potassium iodide in 10-grain doses, three times a day. Calomel, in $\frac{1}{6}$-grain doses, every hour during the day.

"*December 10.* The bowels have not yet been moved. Temperature down to normal. Six P.M. Urine examined and found to have a specific gravity of 1032; acid; no albumin or sugar.

"*12th.* Bowels were moved thoroughly yesterday; mental condition the same.

"*15th.* The bowels have been very costive, requiring calomel, salts, enemata, etc., to move them. No change in the mental condition or sight.

"*17th.* The eyes were examined by Dr. George C. Harlan. He found no light-perception. In the right eye there is extensive hemorrhagic retinitis with superficial and deep hemorrhages scattered over the fundus, rendering it difficult to see the disc. The margin of the disc is obliterated. There is extensive edema. Near the macula are several yellowish-white patches suggestive of hemorrhage. The condition of the left eye is about the same.

"*19th.* Urine again examined. Specific gravity 1018; amber-colored; acid; no albumin; no casts.

"*27th.* Thinks that he can see somewhat better, especially at a distance of about six feet.

"*January 9, 1890.* Eyesight about the same. Passes urine involuntarily.

"*11th.* Yesterday, on awakening, he saw distinctly for about five minutes. This is the only time since admission that this occurred.

"*16th.* Sight is certainly better, especially in the mornings. He has complained of some pain in the eyeballs for the past ten days.

"*20th.* On the 17th he had a chill with a temperature of 101°, without apparent cause. The next morning the temperature was normal, and has remained so."

The patient then left the hospital.

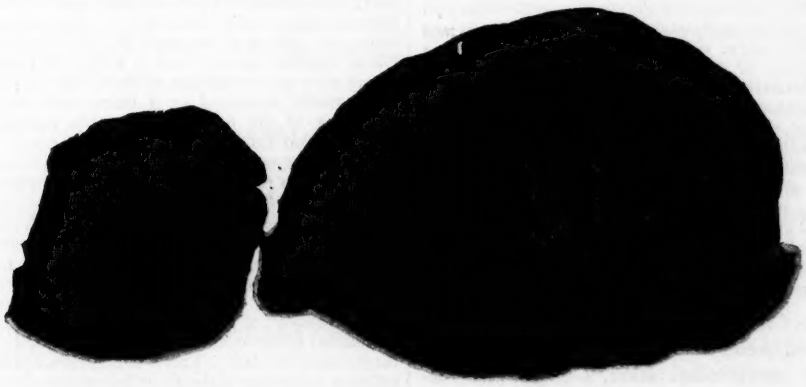
After leaving the hospital he received no medical attention. The principal trouble observed by the patient and his friends was the loss of eyesight, which had sunk to simple perception of light. During the day he sat about the house, and at night he was able, unaided, to go up three flights of stairs. In fact, a few days before his death, he dressed himself and came down stairs without assistance. There was no motor disturbance in any part of the body—no weakness of the muscles. Intelligence did not seem to be materially impaired. His memory for past events was retained. In illustration of this it may be stated that two weeks before his death he was visited by friends whom he had not seen for years, and conversed with them intelligently and rationally about events that had occurred ten years or more previously. For recent events, however, memory was defective. The drawling speech continued, and to this was added slight amnesic aphasia. Occasionally, he would be unable to remember a certain common word which he wished to use, but when it was suggested he would recognize it and be able to pronounce it without difficulty. Hearing was unaffected. The sense of smell was good, but whether or not there was any difference between the two sides could not be ascertained. The bowels and bladder acted normally.

I was called to see him at midnight on December 24, 1891, the statement being that he was in a stupor from which he could not be roused. When I reached the house, however, he was awake. He recognized me when I spoke to him, and his tongue was protruded normally. He lifted first one arm and then the other, and moved the legs at command. He had high fever, injected conjunctivæ, and other symptoms which caused me to believe that he was suffering from an attack of influenza, prevalent at that time. The following day his condition was about the same, but next day he passed into a comatose condition and died that evening.

With the assistance of my brother, Fred. S. Morrison, the autopsy was made fourteen hours after death, the examination being confined to the head. The body was that of a stout, well-nourished man, with nothing abnormal on inspection. The scalp was fully one-half inch in thickness, there being a quarter-inch layer of fat. The bone was of normal thickness, and the dura but slightly adherent to its inner surface. The dura was found strongly adherent to the pia mater along each side of the longitudinal fissure, and a portion of it was removed with the brain. A large tumor was at once evident in the left frontal region. The brain and tumor were removed as carefully as possible. It was found that the tumor had eroded the left half of the cribriform plate of the ethmoid, so that there was a direct communication between the interior of the skull and the nasal cavity.

From the inner surface of the frontal bone, one inch to the left of the median line and one inch above the orbital plate, there sprang a conical projection of bone. This had a base one-half inch in diameter, and projected three-eighths of an inch above the surface of the bone. Corresponding with this exostosis, there was a depression in the dura mater and in the new-growth. Inspection of the external surface of the bone showed no depression and no evidence of injury.

Examination of the brain and tumor, after removal, showed that the growth had occupied the greater part of the left anterior fossa of the skull. The mass is irregularly pyramidal in shape, its base, corresponding with the left half of the frontal bone, being attached to the inner surface of the dura. The base of the growth measures two and one-half inches vertically by three and one-quarter inches transversely. The tumor extends backward into the frontal lobes two and three-quarters inches. After preservation in alcohol for five months, the weight of the mass is five ounces, its volume nine cubic inches, and it displaces five fluidounces of water. The orbital plate of the frontal bone was not displaced, and there was no exophthalmus. The tumor was not adherent to the brain-tissue, but seems to be a dural tumor originating at the position of the projection of bone already mentioned, and thence extending gradually, pressing backward the frontal convolutions. Internally and externally the tumor was covered by cerebral tissue, but underneath, the brain-tissue has been displaced and absorbed in the position of the cribriform plate, and



the bone itself has been destroyed. The tumor was readily lifted from its cavity, and, in fact, care was necessary to prevent it from falling out when the brain was removed.

The growth has been examined microscopically by Dr. C. W. Burr, who pronounces it to be a spindle-celled sarcoma.

The special features of this case, as elicited by post-mortem study, are: The evidences of a slowly-developing and steadily-progressing lesion, accompanied by pain in the head, not distinctly localized, not especially severe; a single epileptiform convulsion, neuro-retinitis, loss of memory, slowness of mental processes, slowness of speech, and slight amnesic aphasia. To these may be added absence of motor disturbances, and absence of signs of involvement of the special senses other than sight.

Referring to lesions in this region, Dr. Seguin says:[1]

"Focal lesions of the frontal lobe produce no specific symptoms, and cannot be directly diagnosticated, unless they extend as far caudad as the base of the second or third frontal gyri. The forward mass of the frontal lobe, including the orbital lobule, appears to be inexcitable and insensitive. Even psychic symptoms do not necessarily appear after the loss of a considerable amount of cerebral substance from this region. The diagnosis of tumors, abscesses, etc., in this part of the brain must be made by taking into consideration the seat of the pain, the presence of cicatrices or other etiological indications, the general signs of cerebral irritation and compression, but, after all, usually by exclusion. In some cases unilateral anosmia is produced."

Dr. Mills, speaking of lesions in this part of the brain, says:[2]

"Lesions of the prefrontal lobe, although this is one of the so-called latent districts of the brain, have, in a large percentage of the carefully-studied cases, shown distinct manifestations. The symptoms are largely psychical, and, unfortunately, the physician is not usually well trained to study such phenomena. Mental disturbances of a peculiar character occur, such as mental slowness and uncertainty, want of attention and control, and impairment of judgment and reason. Closely studied, the inhibitory influence of the brain both upon psychical and physical action is found to be diminished. Memory is not seriously affected, although a continuous train of thought cannot well be followed, and complex intellectual processes cannot be thoroughly performed."

A review of the history of this case, as thus imperfectly elicited, seems to indicate that, had the patient been under careful observation, a diagnosis of the probable seat of the growth would have been made, and, possibly, with sufficient certainty to have rendered an exploratory operation justifiable. Could the tumor have been located some months or a year before death, its removal would have been comparatively easy.

As an example of a tumor in almost exactly the location of the one shown to-night, and in which the growth was successfully located and removed, I may briefly refer to a case reported at the Ninth International Medical Congress, by Dr. F. Durante,[1] of Rome, Italy:

"The patient, a woman, aged thirty-five years, came under observation in May, 1884. Three months before, the left eyeball had begun to be displaced downward and outward. For a year or more the sense of smell had been lost. Memory had become impaired, particularly in regard to remembering names, and she experienced a peculiar sensation of vacuity about the body, which caused her to feel uncertain in her movements. There had been a change in disposition. From being happy and bright, she had become sad and melancholic. Dr. Durante diagnosticated a tumor of the anterior lobe of the brain, basing the diagnosis on the loss of memory, the absence of the sense of smell, the change in disposition, and the displacement of the eyeball. The skull was opened above the orbit by means of a sharp scalpel and hammer, and a tumor weighing seventy grams (two and one-half ounces) was enucleated. The patient made a rapid recovery, with return to the normal mental condition, and was living and well three and a half years later."

Since the preparation of this paper, a case under the care of Dr. Ferrier has been reported,[2] and, as in many of its features it is very similar to the one recorded to-night, I have appended a brief abstract of it. In the symptoms manifested, in the mode of death, and in the location of the growth, the two cases are almost identical:

"The patient, a male, forty years of age, was admitted to the hospital June 30, 1891. Seventeen years before he had been thrown from a carriage, and had remained unconscious for a week. Following this accident, however, he remained perfectly well until a few months before coming under observation. The symptoms noted were great failure of memory, incapability for sustained effort, marked apathy, and a tendency to fall asleep. There were no indications of motor paralysis, though it occasionally appeared as if there were slight relative weakness of the right angle of the mouth. Vision, hearing, and tactile sensibility were good. Owing to the mental condition, no satisfactory conclusion could be reached in regard to smell. Ophthalmoscopic examination revealed typical double optic neuritis. The patient denied the existence of pain, although there seemed to be a slight tenderness over the left fronto-parietal region on strong pressure. There was no material change in the condition until October, when he exhibited greater dulness. He did not know where he was, frequently could not tell his name, and, when asked to sign his name, wrote nonsense. The right pupil was slightly larger than the left. There sometimes appeared to be relative weakness of the right leg, and the gait in general was tottery. This condition continued practically unchanged until January 23, 1892, when, during the prevalence of the influenza epidemic, the patient developed symptoms of this malady. The next day the temperature had reached 104°, and he died comatose on the 28th, the temperature having risen to 106° immediately before death. At the autopsy it was found that the anterior portion of the left frontal lobe was occupied by a large tumor, three inches from above downward, and two

[1] Pepper's System of Medicine, vol. v, p. 89.

[2] Transactions of the Congress of American Physicians and Surgeons, vol. i, p. 272.

[1] Transactions of the Ninth International Medical Congress, 1887, vol. i, p. 570.

[2] Lancet, June 4, 1892.

inches from before backward. The dura mater was adherent to the front of the growth, and it was thought probable that the growth had commenced in this structure and grew backward, compressing the frontal lobe."

Dr. Ferrier, in commenting upon this case, in regard to tumors in this situation, says:[1] "It is not until the tumor presses backward and, directly or indirectly, disturbs the functions of the central and posteriorly situated convolutions, that motor or sensory symptoms declare themselves; and until these have occurred, or until there are signs of implication of the nerves or other structures in the anterior fossa, an accurate diagnosis of the position of the tumor cannot be made with certainty, inasmuch as loss of memory and impaired power of concentration may also be produced by diffuse lesions or lesions which cause general disturbance of the brain. Of the structures in the anterior fossa, the olfactory tract is especially apt to suffer, but, on account of our patient's mental condition, it never could be ascertained with certainty whether there was any implication of smell in the one nostril or the other. During life, however, I had expressed the opinion that the case was in all probability one of tumor of the frontal region, but its precise position, whether deeply seated or superficial, or connected with the corpus callosum, did not appear to me sufficiently clear. For this reason, though I frequently considered the advisability of operation, I did not think it well to interfere until definite localizing symptoms should declare themselves; but the patient was carried off by an intercurrent malady before this event occurred. The necropsy, however, proved that the tumor might have been reached and, in all probability, enucleated by trephining over the left frontal lobe anteriorly."

CAUSES OF FAILURE IN THE TREATMENT OF APPENDICITIS.[2]

BY ERNEST LAPLACE, M D.,
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RECENT literature on appendicitis, teeming with reports of cases and the treatment favored by respective writers, still leaves one somewhat unsettled upon the following points:

1. What are the conditions that imperil a case of appendicitis if left untreated?

2. What are the conditions that imperil a case if treated, *a*, medically, *b*, surgically?

It is commonly accepted that the vermiform appendix is the structure primarily affected. It is the seat of an inflammation started by some foreign body, impacted feces, or local infection in the appendix. The resulting pathologic changes are edema and inflammation, soon communicating themselves to the neighboring loops of intestines, whereby these form adhesions; the inflammatory mass is thus, in the majority of cases, effectually isolated from the rest of the peritoneum. From this moment pain is distressing, and shock robs the patient of vital force. Should the case remain untreated, an abscess is soon the result of diapedesis of white blood-corpuscles overpowered and killed by the septic microörganisms present. Shock increases, the abscess becomes larger than the flimsy walls formed by the adhesions can support, and rupture, with general peritonitis, terminates the case. Sometimes a general infection of the peritoneum takes place from the organisms or their products percolating through the distended bloodvessels into the neighboring structures.

It takes but forty-eight hours to bring on such a condition as would betray clinically the existence of a boggy tumor, sometimes consisting only of highly congested tissues, sometimes the process having gone on to suppuration or gangrene.

It is not my purpose to describe the clinical aspect of the disease, but simply, having a clear pathologic conception of each case, to study how to meet the indications, and avoid the causes of failure.

The first cause of failure is tardiness in undertaking the treatment. The process of inflammation is often allowed to progress instead of being checked at once by medicinal measures. If asked to express in one word the treatment of this affection, I should say, *drainage*. In the first stage there should be intestinal drainage, by the free administration of saline cathartics. This removes the offending material, diminishes the congestion, and helps the bowel to recover its normal condition; but, failing to give immediate relief, the surgeon's interference is demanded. I consider it wrong to the patient to submit him immediately to an operative procedure, without having had the benefit of this medicinal treatment, but much worse to keep it up when no improvement attends it, idly hoping that the violent inflammatory process must disappear, until we are face to face with death.

If in an ordinary abscess we bear in mind that, in the vast majority of cases, it is impossible for pus to disappear without being evacuated (after which immediate improvement follows), we shall see how dangerous is delay in a case of suppurating appendicitis, with a foul fecal condition surrounding it. Delay, therefore, furnishes cases that vary in gravity and in pathologic development; and is therefore the element that determines the prognosis and proportion of failures. The medical practitioner who finds that after mild cathartics the patient is no better, even though the general condition is not much aggravated,

[1] Loc. cit.

[2] Read before the Medical Society of the State of Pennsylvania.

should send for the surgeon—who finds a condition of mild inflammation about the ileo-cecal region, perhaps a few fibrinous adhesions easily separable; an appendix much swollen, but not perforated, no pus, no general infection. The appendix is ligated and removed, the bowels carefully cleansed with aseptic warm water, and the patient makes an early and rapid recovery. I refrain from saying how few would be the failures if the surgeon were always called in time to meet the mild condition described, and treat it accordingly. Unfortunately, such is not often the case; through someone's fault surgical help is sent for on the sixth, tenth, and twelfth day of the disease. According to the violence of the inflammation on the eighth day, we may expect to find any condition varying from that described to one of gangrene and putrefaction of the gut, an abscess, with perforation of the appendix, sometimes having, from the accumulation of foul gas, pus, etc., within it, ruptured its flimsy walls of adhesions, and infected the peritoneal cavity. By this time shock exists to a marked degree, and the case is more grave.

Unless the patient be actually *in extremis*, the surgeon must operate. I shall not attempt any description of the rules to be adopted to guide us in the various steps of so complex and atypical an operation. One who has had to deal with these cases knows how, at different times, all the intricate resources of advanced intestinal surgery find their application here; how well equipped with aseptic operative materials one should be; how calm must be the judgment to dictate whether the gut is to be saved or resected; whether an artificial anus is to be formed or an intestinal anastomosis is to be practised; whether the abdominal cavity is to be immediately closed or not. We realize that each minute in the duration of the operation adds to the already excessive shock, and that promptness, decision, accuracy, *hastening slowly*, will diminish the ultimate chances of failure in the case. One word, however, I must emphasize—*drainage* of the abdominal cavity, in order to insure the proper condition of asepsis. For this purpose a growing experience gives me more and more confidence in the twisted wicks of iodoform gauze. The cavity of the abscess and all of the diseased tissues should be gently compressed or supported by a single large piece of gauze, the extremity of which will protrude from the abdominal cavity and drain the parts much more effectually than any other method of which we know. At the same time it disinfects the secretions to a large extent by the decomposition of the iodoform liberating nascent iodine. On the part of the surgeon, therefore, we think that incomplete or ill-adapted drainage is the foremost cause of failure—pus and foul discharges either remaining *in situ* and gradually infecting the general economy, or being distributed about the peritoneal cavity and inciting a fatal peritonitis.

Should the operation have progressed satisfactorily, causes of failure may also be found in the ill conducted after-treatment. The diseased parts of the ileo-cecal region still contain engorged bloodvessels laden with septic microörganisms; these may be near the inner or mucous surface of the intestine, as well as nearer the outer or serous coat, and it behooves us to get rid of them at the earliest moment. We have already provided for their destruction, should they trespass the serous coat, by the iodoform-gauze packing; we must now do better if possible—cause such a flow of serum toward the interior of the bowel, as will induce the congestion to subside, and with this drain away the septic influences. This is best performed by resorting once more to saline purgatives, which will now be found to materially hasten recovery. Thus, we see that the opening and the closing step in the treatment of this dread condition is alike—flushing and drainage of the intestine.

Corroborative of the views here expressed are eleven cases that I have treated in hospital and private practice during the last four years. Of these, seven occurred in males, and four in females. Two resulted fatally; both were in males. The first, a man of forty-five years, a chronic alcoholic patient, had returned for the third time to the medical wards of the Philadelphia Hospital, suffering with symptoms that pointed more to typhoid fever than to any other affection; on the eighth day, the pain, which was generalized about the abdomen, became limited to the right iliac region, and the temperature went to 103°. The case then came under my care, and the operation revealed a large tumor, consisting of highly inflamed intestine bound together by fibrinous exudate. There was disseminated peritonitis. Three small abscesses were evacuated. The parts were carefully cleansed and the cavity was packed and drained with iodoform-gauze. The intestines were apparently not so diseased as to be unable to recover their healthy condition, but in this we were deceived. Although the patient improved steadily, on the tenth day after the operation fecal, discharges from the bottom of the wound constituted sufficient evidence that perforation had taken place. A low inflammatory reaction soon set in, the patient refused all nourishment, and with uncontrollable nausea, he gradually wasted and died on the twentieth day after the operation.

My second fatal case was that of a strong and vigorous man, twenty-six years old. He had had one previous attack. Living in the country, he was ill four days before receiving medical attention, and then was treated with blisters and enemata. A temperature of 105° and abdominal tympanites suggested that surgical help might be required. It was on the

eleventh day of the disease that I saw the case, and, in face of this discouraging condition, I decided to give the patient his chances. There was generalized peritonitis in addition to the abscess in the right iliac region. The appendix had been perforated, and was in a sloughing condition. This patient died twelve hours after the operation. In both of these cases I believe that the termination would have been otherwise had the operation been performed three days earlier.

The nine successful cases were operated on from the third to the sixth day of the affection. In all, the appendix was found much inflamed, and was consequently resected. In no case was it found necessary to resect the gut. Thorough cleansing of the peritoneal cavity with two gallons of sterilized water at a temperature of 105° constituted the rest of the operation; a large iodoform-gauze drain was inserted at the most dependent portion of the closed wound. Two cases were well in one week, the temperature at no time rising above 100° after the operation. In five cases the temperature rose to 102°, recovery being complete in about two weeks.

Two cases pursued a more sluggish course, inasmuch as the patients were more than sixty years of age, and nutrition was at a low ebb. The one was an alcoholic patient, and the second a woman with a distinct specific history. Both, however, ultimately recovered.

The main causes to which, in our judgment, failure should be ascribed are:

1. Tardiness in undertaking the medical treatment.

2. Tardiness in undertaking the surgical treatment, should no improvement follow the first thirty-six hours' medical treatment.

3. Granted a surgical treatment: shock and improper drainage—especially when the case has been of more than three days' standing.

4. Granted a surgical treatment and the case be seen within the first seventy-six hours' duration, the chances of failure are at a minimum; because the mere opening of the abdominal cavity, in these days of surgery, is attended with but very little risk.

HYPERTROPHY OF THE LINGUAL TONSIL, WITH REPORT OF FIFTEEN CASES.

BY W. SCHEPPEGRELL, A.M., M.D.,
OF NEW ORLEANS.

THE comparative paucity of literature on the subject of the hypertrophied lingual tonsil would lead us to suppose that this is either a very rare affection or that there is much difficulty in its diagnosis.

That the former is not the case is proved by the fact that of one hundred cases applying for treatment in the Ear, Nose, and Throat Department of the Eye, Ear, Nose, and Throat Hospital, of this city, eight cases were diagnosticated as having, among other conditions, hypertrophy of the lingual tonsil.

The diagnosis of this affection is not difficult. Frequently the symptoms alone point out the base of the tongue as the seat of the disorder. A physical examination is made by drawing out the tongue with a napkin, and pressing the velum palati gently but firmly back by means of a laryngeal mirror. Under a good illumination, if there is an hypertrophy of the lingual tonsil, there will be seen, instead of the normally smooth base of the tongue, a number of broad granulations, varying in size and number. Sometimes the granulations are so situated, and so large, that they interfere with the free movements of the epiglottis, and in these cases we have the most characteristic symptoms.

Among the symptoms complained of by the patients are: a feeling of a foreign body in the throat, which the patient in vain tries to swallow; a feeling of something "sticking" in the throat, a sense of suffocation, difficulty in swallowing, a feeling as if a ball were rising in the throat (globus hystericus), palpitation, and other reflex nervous symptoms. On one occasion, a patient insisted that she had swallowed a feather a year ago, and that it still "tickled" her throat. The cauterization of a prominent hypertrophy of the lingual tonsil caused a complete disappearance of this sensation.

In some cases, especially if the hypertrophy is not marked, no special symptoms are complained of.

Of fifteen consecutive cases of hypertrophy of the lingual tonsil, five were in males and ten in females. Fourteen cases were in whites, one in a mulatto, and none in blacks. The ages ranged from nineteen years, the youngest, to fifty-one years, the oldest. Between nineteen and thirty, there were ten cases; between thirty and forty, one case; and from forty to fifty-one, four cases. Of the fifteen cases, all of the symptoms were attributable to the hypertrophied lingual tonsil alone in seven cases. Of the remaining cases, the hypertrophy of the lingual tonsil was associated with hypertrophy of the faucial tonsil in one case; with hypertrophy of the uvula in two cases; with hypertrophy of the pharyngeal tonsil in two cases; with pharyngitis in one case; with hypertrophic rhinitis in two cases; with atrophic rhinitis in one case; and with otitis media in three cases.

The treatment consists in thorough cauterization of the hypertrophy with the electro-cautery. The part should first be cocainized; cocainization, however, is not as effective here as in the nasal passages; nor is it effected as readily, as the solution of cocaine is diluted by the rapidly accumulating saliva. With care and patience, however, the parts may be so

well anesthetized that the operation will be but little painful.

By means of a napkin the tongue is then drawn out by the patient, and with the laryngeal mirror in the left hand, the velum palati is pressed back until the granulations at the base of the tongue, under full illumination from the head-mirror, are exposed to view. The electro-cautery, previously adjusted to a dull red, is then applied and the granulations thoroughly cauterized, care being taken to avoid the epiglottis. The patient is then told to use a bland and unirritating diet for a few days.

For a week the cauterized part appears white, and is painful and irritated. The pseudo-membranous slough begins to exfoliate on about the eighth day; in two weeks the part appears clean, and, if the cauterization has been thoroughly done, free of granulations. When this is not the case, as, for instance, if the granulations are unusually large, the cauterization should be repeated.

If the hypertrophies are very large, they may also be removed by the cold snare, but, in most cases, the electro-cautery is the most effective method. The chemical cauteries are by no means as convenient or as efficacious as the electro-cautery.

The treatment of these cases is usually successful, and, if the hypertrophy of the lingual tonsil is the sole cause of the symptoms, very gratifying.

CASE I.—Louis C., white, twenty-four years. Hypertrophy of the faucial and lingual tonsils, and an hypertrophied uvula. The hypertrophy of the faucial tonsils was removed with Mackenzie's tonsillotome; of the lingual tonsil, with the electro-cautery; and of the uvula, with the cold snare. Discharged cured.

CASE II.—Mrs. Mary C., white, forty-two years. Complains of "trouble" in swallowing and in taking breath. Symptoms cured by the application of the electro-cautery to an hypertrophied lingual tonsil.

CASE III.—Mrs. Sarah B., white, twenty-six years. Hypertrophy of the lingual tonsil. Complains of a ball rising in the throat (globus hystericus), and "nervous attacks" about every second day, when she suffers from general irritability and trembling of the limbs. The hypertrophied lingual tonsil was cauterized with the electro-cautery. A week later the patient reported that she had had no repetition of the nervous attacks, or of the sensation in the throat. Two months later the patient had had no return of the symptoms.

CASE IV.—Miss R., white, fifty-one years of age. There was hypertrophy of the lingual tonsil, associated with a dropsical effusion in the right leg, due to anemia. The hypertrophy was cauterized, and the patient ordered a nutritive diet, fresh air, iron, and tonics.

CASE V.—Miss Emma C., white, nineteen years old, had hypertrophy of the lingual, pharyngeal, and faucial tonsils. She complained of a fulness in the throat and a sensation of choking. The hypertrophy of the right faucial tonsil was removed with the tonsillotome; six days later the left tonsil; eleven days later the pharyngeal tonsil was curetted, and four days later the electro-cautery was applied to the hypertrophied lingual tonsil. The patient was discharged two weeks later, stating that she felt "splendid."

CASE VI.—Mrs. L. B., white, thirty years old, had hypertrophy of the lingual tonsil, associated with nasal stenosis, due to falling of the cartilages of the alæ. The patient complained of a sensation of choking when swallowing, of "short breath," and extreme nervousness. The hypertrophy in this case was very marked. The patient was told to return the following day for cauterization, but has not appeared since.

CASE VII.—Christian K., white, forty-eight years of age, presented hypertrophy of the lingual tonsil and elongated uvula. The patient complained of a feeling as if there were a "lump in the throat," and a stinging sensation. These symptoms have been present for eight months, but have become aggravated during the past month. The elongated part of the uvula was removed by means of the cold snare, and the hypertrophied lingual tonsil cauterized. As the patient left the city a few days later, the result of the operation is not known.

CASE VIII.—Philip D., white, thirty-eight years of age, had hypertrophied lingual tonsil, rhinopharyngitis, and chronic inflammation of the middle ear. The hypertrophied lingual tonsil was cauterized.

CASE IX.—Frank D., white, twenty-four years. There was hypertrophy of the lingual tonsil, post-nasal adenoids, and hypertrophic rhinitis. The adenoids were removed with the curette, and the inferior turbinated bodies and lingual tonsil cauterized. Discharged cured.

CASE X.—Miss Emma C., white, fifty years old, had hypertrophy of the lingual tonsil. She complained of a "fulness" in the throat, frontal headache, and palpitation. Operation was refused.

CASE XI.—Thomas R., white, twenty-three years old, had hypertrophy of the lingual and pharyngeal tonsils. He complained of an accumulation of "phlegm" in the pharynx, and a dull pain on both sides of the throat when swallowing. The curette was used on the pharyngeal tonsil, and the electro-cautery on the lingual tonsil. He was discharged cured.

CASE XII.—Mrs. Mary P., white, forty-four years of age, was found to have hypertrophy of the lingual tonsil, and impaction of cerumen in auditory canals. The patient complained of an irritable cough, and a feeling as if there were "two sticks in the throat." The granulations at the base of the tongue were so large that they prevented the free play of the epiglottis, thus probably causing the cough.

The impactions were softened with a solution of sodium bicarbonate, and washed out with warm water. The hypertrophied lingual tonsil was cauterized. She was discharged cured, all symptoms having disappeared.

Case XIII.—Noemie L., white, twenty-six years old, had hypertrophy of the lingual and pharyngeal tonsils, and chronic inflammation of the middle ear. The patient easily "catches cold," and has a constant inclination to swallow. Hypertrophy of the pharyngeal tonsil was removed by means of a curette, and the lingual tonsil was cauterized. Two months later the patient stated that she had had no "cold" since the operation, and no longer had the inclination to swallow continually.

Case XIV.—Alice W., a mulatto, twenty-six years of age, had hypertrophy of the lingual tonsil, hypertrophic rhinitis, and otitis media chronica. The patient complained of a "stinging" sensation in the throat, a pain in the chest, and a feeling on drinking liquid as if "it would not go down." The inferior turbinated bodies and lingual tonsil were cauterized, with complete disappearance of the throat symptoms.

Case XV.—Lizzie P., white, thirty years, was found to have hypertrophied lingual tonsil. The patient complained of a feeling as if the "throat were closed," and as if "the glands were swollen." She claims that the affection was due to an attack of the grippe. The lingual tonsil was cauterized, and she was discharged cured.

271 Carondelet St.

TRICHOREXIS NODOSA—A PRELIMINARY NOTE.

By MAZŸCK P. RAVENEL, M.D.,
of Charleston, S. C.

The generally accepted etiology of this rare and interesting disease of the hair-shaft has caused it to be described in most text-books as an atrophy of the hair, and some form of malnutrition is put down as the first cause.

I have recently made an observation that tends to overthrow this belief, and points almost conclusively to a parasitic origin. For five years past I have had the opportunity of watching the clinical features of the disease in myself, and I have therefore naturally been more than usually interested in it, and during that time all of the commonly-advised remedies have been tried without benefit or effect.

About a month ago I discovered that many of the hairs in my shaving-brush—probably one-fourth of them—were affected with the disease. So soon as possible the brush was submitted to my teacher, Dr. Henry W. Stelwagon, the well-known authority on diseases of the skin, who, after careful examination, has pronounced the condition of the hairs in my brush identical with that seen in my beard and moustache.

Dr. John Guitéras, Professor of Pathology at the University of Pennsylvania, kindly interested himself in the matter, and sent at once to Cuba for the shaving-brush and tooth-brush of a gentleman who, for some years, has been troubled with trichorexis nodosa. In both brushes the disease is typically illustrated. At the suggestion of Dr. Guitéras, my own tooth-brush has been examined by Dr. Stelwagon and myself, and in it also the same condition is well marked.

It is of interest to note that the shaving-brushes are made of entirely different hair, one being what is called in the shops "Badger" hair, the other some coarser hair, resembling hog-bristles, while the tooth-brushes represent still another kind of hair, all probably infected from the users, as will be shown more fully in a subsequent paper.

Dr. Guitéras has begun an investigation of the subject, which will be reported in time, and which I trust will result in the clearing up of our knowledge of the etiology of the disease.

In the meantime, may I ask that any physicians having the disease themselves, or in the case of patients under their care, will examine the shaving and tooth-brushes, and report the results to me, of which suitable acknowledgment will be made. Should the brushes be found affected, I will be glad to have some of the hairs sent to me, with a brief history of the case.

Please address, in care of Dr. H. W. Stelwagon, 223 South Seventeenth Street, Philadelphia.

ORIGINAL LECTURES.

TUBERCULOUS DISEASE OF THE TESTICLE—TUBERCULOSIS OF THE CERVICAL GLANDS—RODENT ULCER—SCIRRHUS OF THE BREAST—ACUTE SUPPURATIVE DISEASE OF THE JOINTS—FIBROMA OF THE BREAST.

By J. B. HAMILTON, M.D., LL.D.,
Professor of the Principles of Surgery and Clinical Surgery, Rush Medical College; Professor of Surgery, Chicago Polyclinic, etc.

TUBERCULOUS DISEASE OF THE TESTICLE.

Gentlemen: This patient comes before us with disease of both testicles, which has existed for some time. He has had pain, and a fluctuating swelling was opened by his physician and pus was found. On examination, I find that there is a swelling of the epididymis, which feels something like varicose veins. It is, however, more solid and more consistent than varicose veins would be, but the disease evidently involves the whole epididymis. He has also swellings in the groin on either side, and his general appearance is that of a scrofulous, or, as we now say, a tuberculous person. The history of this disease is one of swelling commencing in the epididymis. That is characteristic of tuberculosis. We might have other affections of the epididymis, but tubercle is *par excellence* the disease we look for in a patient having such constitutional characteristics: he is thin, pale, hollow-chested, and anemic.

As to the cause of tuberculosis of the epididymis, we are as much in the dark to-day as before the discovery of the tubercle-bacillus. Some transcendentalists have

asserted that during coitus the bacillus found its way through the meatus urinarius into the seminal vesicles, thence to the convoluted tubules that constitute the epididymis; but that is not proved, and consequently it must be stated as a theory rather than as a fact. Tuberculosis of the epididymis appears first in the head of the epididymis, not in the tail as it is termed, or that portion which extends from the head to the vas deferens; this is affected later. When you feel the head of the epididymis you will realize that the tuberculous process commences at that point. It is not, as a rule, very painful in the beginning, but it is sometimes very much so. There are three characteristic symptoms, one of which is a discharge from the penis which somewhat resembles ordinary gonorrhea or blennorrhagia, but is not yellow, like the discharge of gonorrhea. The margins of the meatus urinarius are not swollen as they are in gonorrhea. There is no pain whatever in the urethra. I beg of you to bear in mind this diagnostic point, that there is no pain and no tenderness in the urethra. When we have a chronic orchitis from gonorrhea or venereal infection we do have pain in the meatus urinarius. Occasionally there is difficulty in micturition. When the tubercle is broken up, pus is formed, and we then have a pus-cavity, and most likely elevation of temperature in the part. Another symptom is hematuria; and the third is swelling of the epididymis.

The surgical treatment is various. It has been proposed by many surgeons to open the abscess-cavity and scrape its walls, as well as those of the fistulous tract leading from it, but the disease sooner or later returns, and then we have gained but little by that operation. Hence most surgeons, especially in America, believe in entire extirpation of the testicle, and in that way measurably relieving the system from the danger of disseminated tuberculosis. The disease in this case has progressed beyond the point at which we might hope to prevent general tuberculosis, because we have swelling of the glands beneath Poupart's ligament, and there is no doubt but that the disease will reappear in some other situation. We may, however, relieve some of the patient's symptoms. We can relieve the pain in the epididymis, and we can postpone and perhaps limit general infection to a considerable extent, by removing the diseased organ.

The operation is simple. It consists in a single incision, directly down to the testicle, separating the vas deferens and the vessels of the cord; we then tie these, and remove the organ.

The left testicle in this case is somewhat involved in the disease. As I grasp the organ, I find the disease is mainly confined to the epididymis, so that I presume if it were practicable to remove the epididymis and leave the testicle, we could do so. But bear in mind that would involve the removal of the vas deferens. It would then be an organ without a duct, and therefore useless. Moreover, in the stage of the disease to which these testicles have progressed, they are useless so far as procreation is concerned. The discharge which comes from the penis in a case of tuberculosis of the testicle rarely contains seminal fluid. Sometimes spermatozoa may be detected in it, but with extreme rarity.

As the epididymis is here uncovered we see a mass of dilated veins; we see a nodular margin clearly tuberculous, and the testicle itself is cystic. I will now grasp the organ, separate it carefully from the tunica, and passing the forceps through the thinnest portion of the fascia, seize the ligature and draw it through.

Of course, gentlemen, in such cases there are two *infallible* means of diagnosis of which I have not yet spoken. One is inoculation, whereby some of the fluid from one of these tuberculous nodules would be injected into one of the lower animals and reproduce the disease, white mice and guinea-pigs being used preferably for this purpose. The other method would be the staining and finding of the tubercle-bacillus under the microscope.

The cord having been tied and the vessels secured, we now simply stitch the external wound. As the operation has been done under aseptic precautions, the patient carefully prepared before the operation, and everything which has come in contact with the wound has been rendered surgically clean, we need have no fear that primary union will not result.

There is one point in the after-treatment that deserves attention. You will observe that I insert no drainage-tube in this case, because it is unnecessary, as we have prevented the wound from coming in contact with any pus-organisms, and it is now necessary to support it with a proper bandage. Such is the laxity of the scrotal tissue that the scrotum itself will be filled up with the blood that comes from the parenchymatous oozing unless firm support is made by bandaging. See that the parts are placed in exact apposition, and we may expect primary union in this case.

TUBERCULOSIS OF THE CERVICAL GLANDS.

Here is a marked case of tuberculosis of the cervical glands. It has progressed to suppuration. The central gland is suppurating. I feel that the entire chain of glands of this triangle of the neck is involved in the disease. On the other side of the neck the glands are not yet involved. As I press my fingers above the clavicle on the side of the sterno-cleido-mastoid muscle, I find that this chain of glands extends all the way to the clavicle, evidently involving the whole lymphatic system of the neck. If the woman desires to escape disseminated tuberculosis she will have to have the glands removed early. (The patient declined to be operated on at this time.)

RODENT ULCER.

The patient just placed on the operating-table has rodent ulcer, as it is termed, involving the lower eyelid, a portion of the upper eyelid, and the eyebrow of the left side. Rodent ulcer, it is now known, is simply a variety of epithelioma. It is true carcinoma, of epithelial growth. It presents a characteristic appearance, a ragged, slow-growing ulcer, usually appearing on the side of the nose, the canthus of the eye, or the eyelid itself. The hemorrhage is a little less in these cases than it is in other varieties of epithelioma. There is more pus formed in them; but they are quite as intractable, quite as likely to destroy life if allowed to go on, and require the same treatment as other varieties of epithelioma. It is a somewhat singular clinical fact that epithelioma or rodent ulcer of the upper eyelid is more speedily fatal than if the lower lid is involved. The explanation usually given is that the globe is sooner involved when the upper eyelid is affected by the disease, than when it is

confined to the lower lid. In the case before us you will notice that there has been entire destruction of the lower lid, commencing at the conjunctival rim, and the conjunctiva of the globe is also affected by the disease.

In the operation for the relief of this disease we must not regard the scar that is to be left as of any great significance, the thorough extirpation of the disease being of the first importance. Any portion of this neoplasm that remains in the tissue is certain to be reproduced; the first thing to do, therefore, is to determine upon thorough extirpation, and afterward we may consider the correction of any deformity that has been made as a result of the operation. The operation this afternoon will, therefore, consist in the thorough removal of the diseased structure, and then a plastic operation for the restoration of the lower eyelid, and for the filling up of the gap we shall have made by the extirpation of the disease. Please bear in mind that in the planning of the incision, I shall not particularly regard what kind of a wound I shall leave on the face, but I shall plan to extirpate every portion of the diseased tissue. Operations about the face are usually extremely bloody, owing to the extreme vascularity of the tissues, but the hemorrhage is easily controlled.

I have now separated the diseased mass and shall proceed to extirpate it. I have removed the greater portion of the diseased structure, but I have still to remove the portion that has encroached upon the conjunctiva. The globe of the eye is not involved in the disease, which is progressing very rapidly. It has reached the conjunctiva next to the globe. The next step in its extension would be the invasion of the globe of the eye. That, of course, should be prevented, if it is possible to do so. To that end we must remove all of the structures that seem unsound. It is extremely desirable to preserve the puncta lachrymalia if it can be done. If we are obliged to remove them we are nearly certain to have dripping of the tears, which may be prevented by dilatation of the duct, and occasionally by the formation of new lachrymal ducts, an operation not remarkably easy of execution.

We are now ready to see the condition of this wound. The diseased tissue has been removed, the hemorrhage has been suppressed, and we are ready to see exactly what is required to restore this somewhat irregular breach. You will observe here a triangular wound, having its base toward the globe of the eye and its apex opposite the greater prominence of the malar bone. To restore this cavity it will be necessary that the upper segment, or posterior edge of the triangle, shall form the upper edge of the lower lid; so, then, we shall continue this incision directly down toward the angle of the jaw. We shall leave a vinculum of tissue here; I simply dissect up the flap, carrying the skin and superficial fascia with the flap. I shall now transplant this flap by twisting, so that when it is put in place it will form the lower eyelid. We also require some additional tissue for the upper eyelid, but it will be quite as well to bring this flap in position and stitch it where it belongs. There would be no particular difficulty in closing this wound were it not for the removal of one-half of the upper eyelid. That complicates the plastic operation very materially. I have now, as you see, reconstructed both the upper and lower eyelids. It remains, in order to complete the operation, to sew the conjunctiva just below the globe of the eye. The conjunctiva of the globe of the eye should be sewed to this flap, which is the new lower lid, and for that purpose the upper lid will be drawn upward. I now seize with forceps the conjunctiva, pass a few sutures through it, and thus restore the connection of the lower lid. We shall now ligate the vessels in the space from which I have taken the lower flap, if they require it. We have brought the flaps together as far as it is prudent, or as far as they are likely to remain so; we shall cover the remaining wound with skin-grafts taken from the arm by Thiersch's method.

For many years skin-grafts have been used to repair old ulcers when the epidermis is not sufficient to do so, but it is only within the last few years that these grafts have been used to place on fresh surfaces. Whatever may be said about the origin of skin-grafting, I think there remains no question in the minds of fair-minded surgeons that the late Frank Hamilton, of New York, was the first to suggest it. Improvements have taken place, but the principle of the operation remains as he announced it.

We shall now have the patient's head again carefully washed, so that no infectious material can gain access to the wound. We shall wash the new lid carefully and apply a little pledget of lint between the lids, in order to prevent their adhesion to each other. We now put protective gauze over the skin-grafts that have been inserted by the Thiersch method. We shall now separate the lids for a moment, and you can see that the eye is still uninjured; there has been enough margin of the conjunctiva to sew fast to the lower lid, and we may hope for a very good result.

SCIRRHUS OF THE BREAST.

You observe here a breast which is considerably swollen. It is extremely hard to the touch; we see marked retraction of the nipple; it is very painful, and we have also invasion of the axillary glands on the right side. We notice the pale lips of the patient. She is beginning to be affected constitutionally from this affection, which has grown very rapidly. Of course, there can be but one diagnosis. The patient says that she first noticed the trouble about six months ago. She had influenza last winter, and attributes the origin of this affection to that disease, but she would have had this disease if she had not had influenza. You understand that the condition of this patient is practically hopeless, unless immediate operation is resorted to. It is a case of scirrhus of the breast in an advanced stage. We have swelling of the axillary glands; we have signs of constitutional infection in the persistent anemia that is present, the loss of appetite, pain, and rapid growth of the tumor, all of which point to the extreme malignancy of the growth. The sooner it is removed the better it will be for her. In three or four weeks more it will have progressed until it is attached to the periosteum of the ribs. Not only the glands in the axilla, but the cervical glands will have become infected. The anemia will be such that the reparative process after operation would be materially interfered with, if not entirely stopped, and her chances of recovery decrease in arithmetical progression in proportion to the length of time that she defers the operation. An operation performed to-day

would be worth much more to her than one done three weeks from now.

ACUTE SUPPURATIVE DISEASE OF THE JOINTS.

You will remember that a few weeks ago I presented some cases of acute suppuration of the joint, one in a child in which the elbow was infected, and the other in a little girl in which the wrist was the joint infected. I stated on that occasion that we could arrest the further progress of the disease by thorough drainage, placing strips of iodoform-gauze between the ulcerated ends, or by injection of iodoform-emulsion, and leave the patient with a reasonably good joint. The infant that had the drainage-tube put through the elbow-joint has recovered. When the child was brought to the hospital a few days ago I found that the wound had entirely healed with a perfectly useful elbow. This young lady with suppuration of the wrist-joint has come back for the first time since the operation. The joint, you see, is in an acute stage of suppuration at this time. There is no danger of constitutional infection, because while we have free drainage, we cannot possibly have the patient in particular danger, except from severe pain. These drainage-tubes pass directly through the joint; they are capable of removing every particle of pus that is formed there. The joint is being irrigated with iodine solution. I have seen cases progress admirably in this way without further surgical interference. Unless the bone is too greatly diseased, I like to try drainage in these cases, because if we can preserve the bone in its entirety, we preserve the usefulness of the joint; and when in obstinate cases there is failure, we may still perform arthrectomy or resection, and the delay caused by the milder means will not prejudice the operation.

FIBROMA OF THE BREAST.

In sharp contrast with the case of tumor of the breast previously presented to you, we have here a tumor of an entirely different character—presenting, however, the same outward characteristics. If we examine this patient's breast we find it also to be extremely hard. We have retraction of the nipple; we have a history of antecedent mammary abscess. The hardness, which is due to the fibrous structure, depends upon an increase in the normal connective tissue of the parts. There is no enlargement of the axillary glands in this case. The axilla is perfectly sound. It is true there is pain, but it is due to the enlarged growth and to the mastitis persistently present. You notice, on squeezing the breast, I press out a melanotic fluid. The color is in itself suspiciously suggestive of the melanotic form of sarcoma, in which, the tumor originally having been a fibroid, spindle cells developed, constituting sarcoma. I had such a case in which the breast was removed four times. In the beginning there was melanotic fluid. Section showed under the glass no abnormal elements in the tumor, and yet we began to see what is sometimes called malignant transformation take place in the tumor. There were a few spindle cells; after a while there was a second recurrence, with round cells in addition to spindle cells. We had then developed in the scar of the old operation a ragged sarcoma, which destroyed the patient's life because she refused to submit to a third operation, and went to somebody who applied caustics. She went through the usual round of unfortunate patients in such a condition.

Notwithstanding the pigmented discharge, I believe this case before us to be one of fibroma, on account of the history and on account of the absence or want of any sign of constitutional infection, as shown by lymphatic enlargement. I have advised the woman that it will be entirely safe to remove the gland, for the reason that should there be any doubt it is much better to remove such a gland as this than to allow it to go on and become carcinomatous later, in which case it would not be the fault of the patient, but rather of the surgeon. I also exclude tuberculosis from consideration, because in a case in which the disease had progressed to the stage of abscess, we would necessarily have the signs of constitutional tuberculosis.

In the removal of the mammary gland for carcinoma, it is now customary to remove a great deal of the skin, because the skin is often invaded by the disease, even when the involvement is not distinctly noticeable to the eye; but in the removal of a mammary gland for fibroma, such extensive removal of the skin is hardly necessary.

In this case I will make an elliptical incision, which will include the nipple, then remove the lower portion of the gland first, turn it upward, and the operation will be comparatively easily done. Sometimes I have found it necessary to tie the internal mammary artery, or one of its branches, but as a general thing the ligature of the internal mammary is not required. One other point in the removal of a mammary gland for carcinoma is to be noted: we require all the fat and fascia to be removed down to the fibers of the pectoral, and, in some cases, of the intercostal muscles. We also remove the axillary glands, whether involved or not. As this is a case of fibroma, and not carcinoma, I shall only remove the gland as it now exists. After removal, we feel at the bottom and sides of the wound for evidence of nodules or thickening of the tissue, and trim it with scissors, precisely as would be done in a case of carcinoma, except that we would go more deeply in the latter, and dissect out everything down to the muscular tissue.

PROLAPSE OF THE OVARIES.

A Clinical Lecture
Delivered at Cooper Medical College.

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FOR the morning lesson, I present this case, with the following history: The patient is twenty-eight years of age, a native of Ireland, and was married three years ago. She has never been pregnant; her menstruation is regular, but she has pain in the ovarian region for one day before the flow comes on. This pain is somewhat relieved as the discharge progresses. She suffers much from backache, and this is aggravated during the menstrual period. She also suffers from a sensation of heat in the top of the head, pain under the left breast, and from indigestion—a movement of the bowels causing more or less pain and uneasiness in the region of the uterus. The sexual relations are painful. She also has leucorrhea. Before marriage her health was fairly good, but since her wedding-day the pelvic pain has been

gradually increased, and failure of strength and health has been marked. This woman was placed upon the examining table in the clinic-room below and an examination made. Before being placed upon the table, however, she was asked to remove her corsets and loosen all the skirts and bands about her waist, for no satisfactory examination can be made of the abdominal or pelvic cavity so long as there is constriction of the waist by skirts and corsets. This is a matter of more consequence than would at first appear. The change in the contour of the abdomen upon the removal of a pair of moderately tight corsets is remarkable. With the constriction the abdomen is prominent, rigid, and not easily depressed with the hand. Without the constriction the walls become flaccid and are easily depressed, to the advantage of the examiner who wishes to diagnosticate abdominal or pelvic disease.

With two fingers of the left hand in the vagina and with the right hand on the abdomen, we make a digital and bimanual examination. I would here call your attention to the fact that this bimanual examination is by far the most important of our means of diagnosticating pelvic disease in women. Students usually have the idea that the most important means of diagnosis consists of an examination with the vaginal speculum, but the speculum has not one-tenth the value of digital and bimanual examination. Through the speculum you learn only the appearance and condition of the mucous membrane of the vagina and cervix, and the character of discharges, but with the educated finger you learn by the sense of touch, the size, the position, and the amount of tenderness of the pelvic organs, and the existence or non-existence of pelvic cellulitis and peritonitis, or the presence of morbid growths in the pelvic cavity.

In examining this woman we find the uterus retroverted; the cervix points forward toward the bladder, and the body of the uterus lies backward upon the rectum. On either side of the body of the uterus, on a line with the cervix, I find small elastic masses of the size of large almonds, and very tender to the touch. These masses I believe to be the ovaries, prolapsed into Douglas's pouch. My reasons for believing that these are ovaries is, first, because of their size and tenderness, and secondly, the fact that by bimanual examination I am unable to find the ovaries in their usual place.

Now, what are the conditions that might simulate prolapse of the ovaries? There might be a localized effusion of lymph, but in that event there would be immobility of the part and a history of acute pain and fever. The Fallopian tube might become enlarged, inflamed, and prolapsed; and in this case the diagnosis would be attended with difficulty. The elongated shape of the tube, and especially a history of recurrent attacks of pelvic peritonitis, would give rise to a strong suspicion of salpingitis or pyosalpinx. Small fecal masses in the rectum might simulate a prolapsed ovary, but the differential diagnosis is easily made, because the fecal masses would not be sensitive to the touch, and an examination by the rectum would clear up all doubt.

I would here suggest to you that in any case of doubt and uncertainty the patient be told to return on the following day after having had the rectum thoroughly washed out with large injections of warm water; you can then make a much more thorough examination of the pelvic organs per rectum than you can by the vagina. With the finger in the rectum you can reach from one to two inches higher up into the pelvis than you can by the vagina, and any mass in Douglas's pouch is easily manipulated through the thin wall of the rectum.

The question now arises, What has been the cause of this dislocation of the uterus and ovaries? But this is a question that we shall probably never be able to answer correctly. There are so many causes, some acting slowly, and some suddenly, and of which the patient herself takes no note at the time, that it is impossible to say in most cases what the cause was—lifting heavy weights, the wearing of tight corsets, chronic congestion resulting in enlargement of the ovaries, falls and injuries, congenital faults, and the relaxed condition of the broad ligaments which follow the delivery of the child. Any one of these causes might act in a given case to produce the malady from which this woman is suffering. You will notice that this woman says that her sexual relations have been painful from the beginning, and this you would expect, for the ovaries, being low down in Douglas's pouch, would be impinged upon by the male organ during the sexual act. Furthermore, the passage of hardened fecal matter, by pressure upon the ovary, would also cause pain and discomfort. That the congestion which occurs at the time of menstruation should be accentuated in the prolapsed ovary, and increase the suffering, would seem only natural, since it is certainly usual that standing or walking should also increase the suffering.

The pathology here varies; in a considerable proportion of cases the ovary becomes considerably enlarged, or, as a consequence of pelvic peritonitis, it may become firmly adherent. I should, perhaps, have mentioned to you that a chronic enlargement of the ovary should be considered as one of the causes of its dislocation. It is true that an ovary may remain prolapsed for years without becoming enlarged or causing many disagreeable symptoms, especially if the woman remain unmarried; but, as a rule, no woman can long suffer from dislocation into Douglas's pouch without having local pain and more or less serious disturbance of the general nervous system and of the general nutrition. She becomes nervous and irritable, the stomach and liver become disordered, the complexion becomes bad, and her usefulness in every way is seriously impaired. In this condition sterility is the rule.

The prognosis here depends very much upon circumstance. If the uterus and ovaries are movable, or, in other words, are not fixed by the results of pelvic peritonitis, the prognosis is fairly good, and we have many examples in this clinic of cases of this kind that to all intents and purposes have been cured. On the other hand, while, by careful management, the woman's life can be rendered tolerable by local and general treatment, there still remains a certain proportion of cases in which, by reason of the extensive amount of disease, no local treatment seems to be of any avail and the general treatment proves useless. In this event, the facts of the case should be fairly set before the patient, and the question of the removal of the diseased organs should be discussed. The surgeon dealing with a diseased and useless hand, the oculist with a blind, useless, and painful eyeball, does not hesitate to remove the offending

member. So with the gynecologist. If it can be shown that an enlarged, prolapsed, and adherent ovary is not amenable to conservative and careful local treatment, and the condition of this organ renders the woman's life a burden to her, then she should certainly have the alternative presented to her of parting with the diseased organ.

Owing to the amount of tenderness in the region of the ovaries and uterus, it will be necessary in this case to proceed very carefully. We placed this woman upon her elbows and knees upon the operating table, and the assistant introduced a Sims speculum and lifted up the posterior vaginal wall. The intestines gravitated upward and forward, and as the air entered the vagina the tendency is for the uterus and ovaries to fall forward toward their normal position. I now take pledgets of cotton, the size of a hen's egg, saturated with glycerin, to which are attached some strong threads, and crowd them firmly into the upper part of the vagina behind the cervix, and afterward fill the vagina below with similar pledgets of dry cotton. The speculum is now removed and the woman allowed to get upon her feet. This tampon keeps the uterus and ovaries higher up in the pelvis, and the glycerin, on account of its affinity for water, abstracts from the tissues a large amount of serum and thereby relieves the congestion.

Should this dressing not cause pain, it will be allowed to remain for forty-eight hours, but the woman is strictly enjoined to keep off her feet as much as possible, and to remove the tampon at any time if it causes any considerable amount of pain. This dressing will be repeated twice a week during the inter-menstrual period. If the case does well, the tenderness will be markedly improved within the next two or three weeks, and if the uterus does not return to the normal condition, an effort will be made, while the woman is in the knee-elbow position, to place the uterus in the position of anteversion by means of the uterine sound, thus drawing the ovaries upward and forward out of Douglas's pouch, and the cotton dressing reapplied as before.

If this treatment is well borne, the next step will be the fitting of a Hodge retroversion pessary to keep the uterus in its normal position. If this is successfully accomplished, the ovaries will probably remain very nearly where they belong. Here there is one point that should never be forgotten. If the presence of the vaginal pessary causes pain, it can do no good, but always harm. The true test of any vaginal pessary is that the woman should not know by sensation that any instrument is in the vagina, and that the presence of the instrument gives her a sense of relief. So long as she wears this pessary it will be necessary for her to use a large vaginal injection of warm water at least once in twenty-four hours, with explicit instructions that she remove the instrument at once if it cause pain that is not relieved by a few hours of rest.

The woman asks the question if this plan of procedure will cure her. In answer to this, I would say that if we are ordinarily successful we shall relieve her of a large part of her pain and discomfort. She will probably be compelled to wear a vaginal pessary for several years, but how long it will be necessary for her to wear the instrument in order that these organs shall retain their natural position without it, it is impossible to say.

The argument is made that this is at best but an artificial appliance, and is therefore objectionable, but many persons use artificial appliances about some part of their body because relief and comfort are thus gained. One wears a wooden leg, another a set of artificial teeth, another spectacles, another an ear-trumpet, and no objection is made to these appliances on the ground that they are not curative agents. Therefore, if a woman is relieved of pain and distress by the wearing of a vaginal pessary which does not cause pain, there can be no serious objections to it. It is true that many men make ignominious failures in their attempt to fit vaginal pessaries. It is also true that many men make equally bad failures in their attempts to manage any kind of a mechanical device.

To fit a vaginal pessary properly is not a simple matter. No two women are alike in this part of their anatomy, any more than their voices and their faces are alike, and the endeavor to use in all cases some particular form or pattern of pessary is sure to be followed by disaster. In every case the pessary must be moulded and adjusted to fit the individual requirements. In truth, it is about as difficult to fit a pessary as it would be for the shoemaker to be blindfolded, and then by the sense of touch to convey to his mind the size and form of the foot of his customer, and then go into an adjoining room, remove the bandage from his eyes, and select from his stock a properly fitting shoe. In the case of the pelvic organs there is the added difficulty that their relations are constantly changing and are constantly moving with every inspiration and expiration. So, he who would hope to succeed in the use of vaginal pessaries should not only have a large stock to select from, but should be a man of infinite resource.

There are a few practical points in connection with this case to which I would like to call your attention. Owing to the frequent occurrence of pelvic peritonitis following the use of the uterine sound, there is a strong prejudice in the minds of the profession against its use. If you will observe the following rules, you need have no fear in introducing the sound into the uterus whenever necessary. First, see that the sound is absolutely clean; secondly, that salpingitis, as evidenced by former attacks of pelvic peritonitis, does not exist; thirdly, that the woman be not pregnant; and, lastly, that all acute and subacute inflammation be subdued by proper treatment.

By observing these rules I use the uterine sound whenever required for replacing the uterus, and have no cause to regret doing so. This woman will return at the end of a week, and you will have an opportunity to judge of the effects of our treatment.

CLINICAL MEMORANDA.

LARGE ANEURISM OF THE THORACIC AORTA.[1]

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H. W. G., a compositor, fifty-four years old, was admitted to Jefferson Hospital late in the day on

[1] Presented to the Pathological Society of Philadelphia, October 15, 1892.

September 20th, with a history of having shortly before vomited a large quantity of bright-red blood—more than a pint, it was stated. The man was extremely sallow, and rather emaciated. He related that nine months previously he had had an attack of influenza, in the sequence of which his other symptoms seemed to appear. He found that he had some difficulty of swallowing, with a sense of lodgment of ingested food at a point to the left of the ensiform cartilage, to which eructation gave some relief. Flatulent distention occasioned distress. To these manifestations vomiting was added, the rejection of food taking place usually during the act of eating, practically as soon as the act of swallowing was completed. Nausea was wanting, and there had previously never been hematemesis. The man had lost forty pounds in weight in the course of nine months. He complained of severe pain in the epigastric region, and of boring pain in the spine at a corresponding level. There was a history of bilious attacks, in which the patient stated that there had been some discoloration of the skin. The bowels were, as a rule, constipated. I saw the man but once during life, and made but a partial examination. On percussion of the abdomen an area of dulness was found within the limits formed by the middle line on the left, the flank on the right, the costal arch above, and a line an inch below the level of the umbilicus, which offered an obscure sense of resistance. The remainder of the abdomen yielded a tympanitic note. The resident physician, Dr. Arnold, had listened carefully to the heart, and had detected no adventitious sound. The pulse was weak. There was no edema. There was no shortness of breath, and the man maintained the recumbent posture in comfort. There was no cough. There was moderate spitting of blood-mixed saliva. Following the initial hemorrhage the stools had been observed to be tarry. From the apparent cachexia, the emaciation, the dulness on percussion, the sense of resistance on palpation, the situation and character of the pain, and the course and duration of the case, a diagnosis of carcinoma of the stomach was made. On the second day after his admission to the hospital the patient again vomited a considerable quantity of blood and passed some eight ounces by the bowel, syncope following. He failed to respond to stimulants, and died without reacting.

At the autopsy, held eight hours after death, the intestines were found moderately, and the stomach considerably, distended, especially toward its cardiac extremity. When opened, the stomach was found to contain about a pint and a half of partly fluid and partly clotted blood. The small and large intestines likewise contained large quantities of dark, semi-liquid blood. The pericardial cavity contained about four ounces of turbid serum and a few flakes of recent lymph. The anterior and posterior surfaces of the heart presented several longitudinal patches of old organized exudation. The ventricles were contracted, the left with particular firmness. The left auriculo-ventricular orifice admitted the tips of three fingers. The mitral leaflets were moderately thickened. The aortic semilunar leaflets presented a similar change, though in much slighter degree. The aorta beyond was rough, irregular, and presented evidences of advanced inflammatory and degenerative changes. The left lung was everywhere bound by adhesions of considerable firmness, and its removal was attended with a good deal of difficulty. The lung was found to have been compressed, and to have been much reduced in size. In the course of its removal it was seen to be in intimate relation with a large elastic mass situated in the posterior mediastinum, rather to the left of the median line, behind the pericardial sac, in front of the esophagus and extending from about the level of the sixth dorsal vertebra to the level of the twelfth dorsal vertebra. The right lung was free, except over a small extent of surface posteriorly and superiorly. The apices of both lungs presented slight puckering on the surface, but on section there was no indication of infiltration of the parenchyma. The bronchial glands were enlarged and anthracotic. The retro-peritoneal glands were slightly enlarged, but firm and elastic. On section they presented a gelatinous appearance. The liver appeared of normal size and texture; its cut surface was pale. The spleen was elongated and flattened. The organ was pale on section, but its gross appearance was otherwise unchanged; its texture was of diminished consistency. The kidneys were, perhaps, slightly reduced in size, and presented numerous cysts upon the surface. On section pallor was evident, while both cortical and medullary tissues seemed to have undergone diminution. The capsules stripped readily, exposing a smooth surface. The bladder contained about four ounces of pale urine. Its walls were thickened. The prostate was considerably enlarged. The thoracic and abdominal viscera were removed *en masse*. The mediastinal mass was proved to be an enormous aneurism of the thoracic aorta that had ruptured into the esophagus. The aneurism was about seven inches long, about five and a half inches transversely, and four inches antero-posteriorly. There was considerable thickening, discoloration, and infiltration of the esophagus about the irregular and ragged opening through which the fatal hemorrhage had taken place. The adjacent portion of the left lung was likewise discolored and infiltrated. The bodies of the vertebræ were not affected. The aneurism was filled almost entirely with a fibrinous, laminated clot of firm, elastic consistence. The lumen of the abdominal aorta, as it came off from the aneurism, corresponded with the circumference of the little finger.

The case here reported presents a number of interesting features. First, as to diagnosis. It is doubtful if this could have been made absolutely by physical examination. The growth was not accessible to palpation, percussion, or auscultation; but the occurrence of hemorrhage, with the subjective sensation of an obstruction in swallowing on the part of the patient, should at least have excited suspicion. The passage of a probang was absolutely contra-indicated. The great size of the aneurism and its unusual situation are also interesting. It is surprising that more pronounced cardiac symptoms were not occasioned, interfering with the action of the heart as the tumor must have done. The development of the aneurism must have been extremely insidious and gradual, to allow of the accommodation of the adjacent structures to the presence of such a large disturbing element, for the patient had pursued his usual avocation until the time of his admission to the hospital.

MEDICAL PROGRESS.

Lepra —At the Second International Dermatological Congress, recently held at Vienna, KALINDERO (*Wiener Medizin. Presse*, 1892, No. 39, p. 1539) expressed himself strongly in favor of the contagiousness of lepra. It appears that there is a close resemblance between lepra and syringomyelia. In a given case, the dissociation of the sensory disturbances, the integrity of the superficial muscles of the face, the absence of spots upon the skin, the integrity of the hair, and the deviation of the spinal column would be in favor of syringomyelia; while the loss of tactile sensibility, the atrophy and paresis of the superficial muscles of the face, the existence of nodular thickenings of some of the nerves, the presence of spots upon the body (especially if insensitive), the spontaneous disappearance of the phalanges, the marked changes in the nails, and the partial or complete loss of the hair would be in favor of lepra. The difficulty of diagnosis would be greater in a case of syringomyelia of so-called Morvan type, especially if there were no alteration of sensibility, or, in case of syringomyelia of insidious onset or pursuing an atypical course. In such cases it has proved useful to examine, for lepra-bacilli, the serum obtained from a blister artificially produced on the third or fourth day after the application of the vesicant, at the moment at which suppuration is about to take place. Therapeutically, the best results have been obtained from the employment of crude petroleum, of which from fifteen to twenty-five minims may be administered in capsules from four to six times daily, and ointments of from 1 to 10 per cent. may be applied topically.

The Disinfection of Cholera-dejecta by means of Milk of Lime.—To determine the efficacy of milk of lime as a disinfectant for the stools of cholera-patients, PFUHL (*Deutsche medicin. Wochenschr.*, No. 39, p. 880) made a series of tests. In the first test he treated the recent evacuation of a cholera-patient with an equal quantity of milk of lime, and carefully mixed the two for a minute and a half. A bacteriologic examination made after the lapse of an hour failed to disclose the presence of cholera-bacilli. In the second test the stool and the lime were mixed for only a brief time. Again, no bacteria could be found after an hour. In the third test the milk of lime was merely added to the stool. The former at once sank to the bottom, without mixing with the latter. After an hour bacilli were yet to be found in the stool, although in smaller number than in the untreated stool.

THERAPEUTIC NOTES.

Protective Inoculations against Cholera.—KLEMPERER (*Berliner klin. Wochenschr.*, 1892, No. 39, p. 969) has succeeded in conferring upon man immunity to cholera by previous treatment with cultures of cholera-bacilli, three days old, that had been kept for two hours at a temperature of 158°. It was found that the blood-serum of persons treated with injections of from 0.1 to 1 c.cm. of such cultures had the property of conferring immunity upon guinea-pigs. Some persons exhibit a natural immunity to cholera, but their blood-serum is protective in much less degree for guinea-pigs. The degree of immunity appeared to be dependent upon the intensity of the protective intoxication. The degree of immunity was also greater in inverse proportion to the degree of modification to which the cultures were subjected by exposure to heat. It was clearly demonstrated that moderate quantities of living cholera-bacilli can be injected subcutaneously without occasioning unpleasant symptoms.

For Cholera.—To supply the water, in which the blood and the tissues are deficient in cholera, and to equalize the circulation, SAMUEL (*Deutsche med. Wochenschr.*, 1892, No. 39, p. 881) recommends continuous subcutaneous infusion of a 0.6 per cent. solution of sodium chloride, instituted early, as soon as symptoms of inspissation of the blood appear, and kept up until these symptoms have disappeared, as indicated by the resumption of the secretion of urine. For the purpose it is necessary to have an irrigator, mounted over the bed of the patient, with two tubes controlled by stop-cocks, and two trocars and canulæ. The infusion can be practised in suitable situations, such as the infra-clavicular regions. As swelling occurs from the accumulation of fluid beneath the skin at a given point, the supply of fluid can be cut off temporarily, and the swelling be made to disappear by gentle massage.

For Cholera.—When, in the course of an attack of cholera, the pulse, though weak, is tense, TRUSSEWITSCH (*St. Petersburger medicinische Wochenschrift*, 18 2, No. 36, p. 431) recommends the administration of nitroglycerin, one or two drops of a centesimal alcoholic solution being dropped on the tongue three or four times a day. If, on the other hand, the pulse is small and compressible, eight or ten drops of aromatic spirit of ammonia dissolved in water may be injected beneath the skin.

SAMTER (*Deutsche medicin. Wochenschrift*, No. 38, p. 860) proposes, for the treatment of the fulminant cases of cholera, intravenous or subcutaneous injections of a saline solution, followed by venesection as soon as the circulation has been actively established.

For Cholera.—

℞.—Spts. menth. piper.
Spts. camphoræ
Spts. chloroformi
Tinct. capsici
Tinct. zingiberis
Acid. hydrocyanic. dil. . . āā f ℥ij.
Tinct. digitalis . . . . f ℥j.
Spts. vini rectificat. . . . . f ℥ij.
Glycerini . . . . . f ℥iij.
Tinct. catechu . . . . f ℥vj.—M.

S.—♏xx in a teaspoonful of water every fifteen minutes until vomiting and purging cease.

WALKER, *Medical Reporter*, vol. v, No. 9, p. 128.

For Chronic Scaly Eczema.—

℞.—Acid. salicylic. . . . . gr. x.
Chrysarobin,
Ammonii sulpho-ichthyolat. āā gr. xxiv.
Vaselini flav. . . . . ℥j.—M.

Ft. ung. S.—Apply topically.

UNNA, *Monatshefte f. prakt. Derm*, No. 6.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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SATURDAY, OCTOBER 29, 1892.

THE RELATIVE MORTALITY OF ETHER AND CHLOROFORM ANESTHESIA.

IN preparing statistics upon the subject of ether and chloroform as anesthetics, we have endeavored to adhere closely to certain principles of criticism, which we reluctantly adopted as absolutely necessary in order to reduce the evidence before us to coherence. Data of varying degrees of merit, and obtained under such different conditions that it is the greatest carelessness to range them together as facts of equal weight, are nevertheless commonly found side by side. From such statistics we could not draw any definite conclusions. Nay, the conditions are ignored which we proposed to ourselves as the ultimate test of the value of any series of data. Are there, we asked ourselves, any observations recorded that show that ether and chloroform have been fairly tried together upon that common ground on which both may enter as anesthetics and display their peculiar powers upon cases regularly selected with care and judgment? Pursuing this object, we have been on our guard against any bias in ourselves, and have carefully searched for it in the writings of others.

The number of papers to be examined is astonishingly great. Most of them, we are sorry to say, are liable to the suspicion of partiality. Among those of doubtful authority, from our own point of view, which, it must be remembered, is purely critical, are the following: The experimental; those recounting individual experiences with ether alone, or with chloroform alone; those that assume that the use of chloroform ought to be entirely abandoned; the controversial and polemic, of which unfortunately there are some. Secondly, we have noted as instances of that frame of mind which is unsuitable for fair judgment, such statements as SURGEON-MAJOR LAWRIE'S, that "the most important result of the labors of the Hyderabad Commission has undoubtedly been to establish the proof that chloroform has never, under any circumstances whatever, a direct action upon the human heart"; or M. JULLIARD'S confession that for ether he has long been "*un partisan convaincu*"; or again, his saying, too loosely we feel, that "PROF. TRIPIER has administered ether without accident 6500 times, while on the other hand he had a case of death *sur un nombre infiniment moindre de chloroformisation.*"

It is enough to observe here that by following any party or school we cannot arrive at the truth. In our own judgment, it is assuredly unfortunate that men will use one anesthetic exclusively, as these gentlemen do, for some cases are fit for chloroform, others for ether, others again for nitrous oxide gas, still others, perhaps, for the A. C. E. mixture.

Naturally, we have not found many statistics that are free from the faults that we have either pointed out or hinted at. Indeed, we know but one that is accurate, and has besides the merits we required. Such statistics, we felt bound, must show observations of scientific accuracy, taken during a considerable time, under uniform conditions, by men of approved ability and knowledge entirely interested in a fair trial of ether and chloroform, using neither one nor the other exclusively, but both alike and as nearly as possible an equal number of times; with registrations made at the time of the operation, of the number of cases, with the deaths and accompanying circumstances. By means of these statistics and these alone, may we hope to arrive at a final judgment on the controverted claims of ether and chloroform. We append a table of these desirable data. It is compiled immediately from the *St. Bartholomew's Hospital Reports.* It includes all the observations made:

Year.	Number of cases. Chloroform.	Ether.	Ether preceded by nitrous oxide.	Deaths. Chloroform.	Ether.	Ether preceded by nitrous oxide.	Remarks on the cases pertaining to chloroform.
1875	617	120	764	None	None	None	
1876	670	28	1004	"	"	"	
1877	699	23	1123	"	"	"	
1878	794	15	1009	1	1	"	Syncope after operation.
1879	975	23	984	1	None	"	Syncope after operation.
1880	1055	43	1304	None	1	"	
1881	1072	85	1209	1	None	"	Syncope before operation.
1882	1349	337	1076	2	"	1	
1883	1421	566	1156	2	"	None	
1884	1244	1016	704	None	"	"	
1885	1331	1118	386	"	"	"	
1886	1425	1109	567	1	"	"	Syncope before operation.
1887	1702	1197	662	1	"	"	Syncope after operation.
1888	1711	1003	349	1	"	"	
1889	1601	810	509	2	"	"	Syncope.
1890	1860	998	135	1	1	"	Syncope.
Total	19,526	8491	12,941	13	3	1	
Proportion of deaths	1 : 1502	1 : 2830	1 : 12,941				

It must be admitted that these results are by no means favorable to chloroform, yet we do not go so far as to say, with M. JULLIARD, that we must show these statistics to be inexact, or renounce chloroform. We see that the use of chloroform has increased with moderate fluctuations, reaching a maximum in 1890, and a preponderance over ether in that year of 727 cases with one death for each anesthetic. It is evident, then, that the surgeons had sufficient confidence in chloroform to continue its use—a fact in its favor. Whether this confidence is deserved we may judge by an examination of the circumstances attending the deaths. In the right-hand column of the table we have noted the cases of syncope; these may be left to speak for themselves. Of the remaining deaths, we may ascribe two to asphyxia. The others, we think, were highly probable with any anesthetic. Thus we have nine deaths out of thirteen which sufficiently enforce the peculiar dangers of chloroform. With these facts before us we cannot feel any great degree of confidence in that anesthetic. If, on the other hand, we look at the circumstances attending the three deaths under ether, we shall see that they were almost inevitable. The report of the first is as follows:

(1) A man, aged forty-seven, died when under the influence of ether. He was suffering from intestinal obstruction for which lumbar colotomy was undertaken. In the morning he had had a severe attack of dyspnea. He was in a state of profound collapse at the time of the operation; his belly was tumid, his respiration shallow, and his pulse feeble. He vomited frequently, and after inhaling ether for ten minutes became livid and never again rallied.

(2) A man, aged sixty-one, suffering from strangulated inguinal hernia, died under the influence of ether. He had been delirious the previous night; his pulse was irregular and feeble, and he had constant vomiting. During the operation the pulse became imperceptible, and finally respiration ceased. At the necropsy the heart-substance was found slightly fatty, the cavities were nearly empty, containing no clots. The lungs were emphysematous; all the posterior parts were engorged with blood.

(3) A man, aged fifty-six, died under the influence of ether. He was a drunkard and had sustained a fracture of the tibia and fibula. After suffering from delirium tremens for ten days, ether was administered in order to reset the broken bones. This was satisfactorily done, and three minutes after the cessation of the administation of ether the heart suddenly ceased beating, then respiration stopped, and the patient died. A post-mortem examination showed the lungs much engorged, a flabby heart, and a fatty liver.

We have given great prominence to these statistics on account of the merit they possess and the excellent model they furnish. We cannot be too grateful for them.

Next to the statistics of St. Bartholomew, we selected others from the *Proceedings of the German Chirurgical Society*, Berlin, April, 1891. They are inferior in many particulars, and they furnish very few administrations of ether. The data were supplied by 66 colleagues, chiefly German, besides 3 Austrian, 3 Russian, 2 Swedish, 1 each from Holland and Belgium. BARDELEBEN, from the Charité, 1878–90, sends statistics of over 12,000 administrations of chloroform with 7 deaths. In addition were reported:

	Cases.	Deaths.	Asphyxias.
Chloroform alone,	22,656	6	71
Ether alone,	470	0	0
Ether and chloroform,	1055	0	5
		6	76

There was thus one death in 3776 administrations of chloroform. The duration of the narcosis in 2732 cases was one hour; in 278 a longer time, sometimes from 150 to 155 minutes. In the Charité, in the last six years, 1 c.cm. of chloroform was used

per minute during the narcosis. The greatest amounts used during an operation ranged from 150 c.cm. to 180 grams.

Next we give the results of individual experience, furnished by 42 authors. They were published in February, 1891, by M. Julliard (*Rev. Médicale de la Suisse Romande*, 1891, vol. ii), who based them on Compte's table. We have added some others published since.

Chloroform.

	Administrations.	Deaths.	Proportion.
1. Andrews	117,078	43	1 : 2,721
2. Coles	152,260	53	1 : 2,873
3. Richardson	35,165	11	1 : 3,196
4. Ker	36,500	1	1 : 36,500
5. Rendle	8,000	3	1 : 2,666
6. Army Circular	80,000	7	1 : 11,448
7. Baudens	10,000	1	1 : 10,000
8. Nussbaum	15,000	0	
9. Billroth	6,000	2	1 : 3,000
10. Billroth	12,500	0	
11. König	7,000	0	
12. Kappeler	5,000	1	1 : 5,000
13. Mills	4,810	2	1 : 2,405
14. Lyman	5,860	1	1 : 5,860
15. Julliard	1,000	1	1 : 1,000
16. Académie de Méd.	5,200	1	1 : 5,200
17. Anstie	3,058	21	1 : 145
18. German Statistics	7,000	1	1 : 7,000
19. Maud Hospital	500	1	1 : 500
20. 13 Eng. Hosps. (Asclepiad)	35,162	13	1 : 2,704
21. Glasgow West. Infirm.	10,000	4	1 : 2,500
22. " Children's Hosp.	2,160	0	
23. Atthill	5,000	1	1 : 5,000
24. Kashmir Mission Hospt.	5,000	0	
25. Buchanan	10,000	1	1 : 10,000
26. Wallace	14,000	0	
27. Lawrie and Syme	45,000	0	
28. R. Williams (Middlesex)	208	1	1 : 208
Total	638,461	170	1 : 3,749

Ether.

	Administrations.	Deaths.	Proportion.
1. Andrews	83,815	4	1 : 20,953
2. Coles	92,815	4	1 : 23,204
3. Gerster	10,791	6	1 : 1,798
4. Lyman	16,542	1	1 : 16,542
5. Warren	20,000	0	
6. McGunn	13,000	0	
7. Bigelow	15,000	0	
8. R. Williams (Middlesex)	1,050	1	1 : 1,050
9. Mills	6,440	2	1 : 3,220
10. Julliard	3,654	0	
11. Bruns	300	0	
12. Tripier	6,500	0	
13. Dumont	750	0	
14. Ollier	29,500	0	
Total	300,157	18	1 : 16,675

If we add Dr. Rabatz's experience with ether, 150,000 administrations without a death, we have the weightiest evidence yet adduced by a single expert of the superior safety of anesthesia with ether.

We have not space for a critical estimate of the value of these tables. We dare not draw any bold conclusions from them. A glance will show that in some hands ether has not proved any safer than chloroform, but this statement is not entitled to much weight, because we do not know what causes may have brought about this result, nor how under the same conditions chloroform would have behaved. In conclusion, we confess that before our survey we were disposed to prefer chloroform, but we have seen enough to convince ourselves that there is wisely going on a considerable retrenchment in its use, and that there is destined to be a still greater decline. How great this retrenchment ought to be is an interesting question which we should like to be able to determine. Unfortunately this is impossible. Even among men of the greatest practical skill and experience there is a difference of opinion as regards the choice of ether or chloroform in cases in which it seems to us one is clearly preferable. We refer to the operations of abdominal surgery. In such cases, Mr. Lloyd, whose paper in the *Lancet*, March 14, 1891, is distinguished by admirable clearness and good sense, prefers ether. On the other hand, Dr. Gaillard Thomas asks if chloroform would not be better, at least in celiotomies. We take leave of the matter with this example, among others that we have noticed, of the unavoidable perplexity and disagreement of all who interest themselves in the various claims of the two anesthetics—a disagreement that, while it lasts, will suffer the choice of a suitable anesthetic to remain with each practitioner, and leave the way open for abundance of error.

CONTROVERSIAL SCIENCE AND POLITICS.

Not infrequently thoroughly scientific facts have been condemned through unjust and partial criticism, made by prejudiced individuals. Numerous instances of this have occured in the histories of discoveries, and while many superstitions have been overthrown, the tendency to criticise everything adversely has not markedly lessened. For example, when Koch's discovery of the bacillus of cholera was announced, an English authority investigated the discovery and reported adversely upon it.

Scientific criticism is always welcome, as it maintains carefulness, secures thoroughness, and guards against possible imposition. Occasionally, however, unscientific, demagogic, partial, and prejudiced criticism develops a very incorrect impression concerning some discovery or asserted observa-

tion. This is nowhere more likely to occur than in departments, or laboratories, controlled by political influence. What is called "pull," in the estimation of scientific men, wrecks many an investigation originating from department sources. There are many laboratories controlled by Government and State influences, but to comparatively few is science indebted for advance in knowledge. It is another unfortunate fact that not infrequently the layman looks upon these departments as furnishing authoritative statements, and the position of the investigator is such as to give them wide dissemination. Circulars and bulletins are issued and alleged information is diffused in a manner equalled by no private or college enterprise. The whole subject of political laboratories, investigations, etc., for scientific purposes is in such a chaotic condition as to make us discredit much originating from these sources that might otherwise be of value.

As a recent example of this sort of criticism, we have a discussion arising between DR. FRANK BILLINGS, of the Patho-biological Laboratory of the State of Nebraska, and the United States Department of Animal Industry, with specific charges against the Hon. Secretary of Agriculture and many of his subordinates. In letters, public and private, the Department has criticised DR. BILLINGS'S statements in a most unscientific manner. The perfervid criticisms are those one would expect from the political platform, and are of that order of intelligence depending for its efficiency upon dogmatic mis-statements of facts. No doubt DR. BILLINGS has just cause for complaint, and justly objects to these attacks. It is hardly to be presumed that his book, entitled *Inoculation a Preventive of Swine-plague, with the Demonstration that the Administration of the Agricultural Department is a Public Scandal; an Exposure by Frank S. Billings, M.D., Director of the Patho-biological Laboratory of the State University of Nebraska*, should be published, except by a conscientious believer in the theories advanced. The error of DR. BILLINGS lies in the manifest return of left-handed compliments. True, he is repaying the coin he has received, but that is the very point wherein he errs.

The book is not for sale, but is evidently intended for distribution, largely among the lay members of the community. How much better it would have been had DR. BILLINGS laid before the scientific world a less sensational and a more scientific article. But few scientific men will hold the book other than an obstacle to scientific progress, and as bringing discredit upon the laboratory of DR. BILLINGS, while at the same time doing but little harm to the mistaken ideas that he attacks. Every scientific man knows that in this country, in which the struggle for political power is rife, how little we are to expect from departments whose heads are individuals appointed from purely political motives. Can we expect a new Secretary of any Department to come in and pick up the thread where his predecessor has dropped it? Each has his hobbies, and while one individual will be interested in the study of hog-cholera, it is probable that the next occupant of the chair will be interested in "spavin" or "fluke disease," so that this confusion of object adds to the difficulty and retards scientific investigation.

The ideal laboratory of the Government should be organized with a thoroughly conscientious director, with an unlimited term of office, and if a scientist of character and ability has a subject he desires to investigate he should be afforded ample and abundant facilities, be paid a salary, should have his expenses borne, and, when he has completed the work, it should be published by the laboratory and laid before the scientific world. If it is found that his work is deserving of credit, he will be applauded; if such is not the case, the result will be manifest, and the experiment not repeated. Other safeguards may be thrown around the institution to prevent cranks and impostors from gaining ingress. Investigators may be recommended by scientific societies or colleges, or by the representatives of the different services—the Army, the Navy, or the Marine-Hospital Service—and the political element thus removed. Until some such arrangement is made, outrages upon scientific progress and scientific education, such as the present controversy, however just it may appear to laymen, will be continuously occurring, to the discredit of all parties concerned.

A QUESTION OF NOMENCLATURE.

THE letter of PROFESSOR FORBES in the present issue of THE NEWS arouses an opportune query. The restriction of the term *symphysiotomy* to section of the pubic symphysis is, of course, not authorized by the etymology of the word, and if in future the division of some other than that of the pubic symphysis should acquire exceptional importance, confusion might arise unless some further etymologically unauthorized coinage be invented to express

it. The word *pubiotomy* is found in the medical lexicons, but it is difficult to see why it should be thus spelled instead of the more correct *pubeotomy*. It may be said that in the operation in question it is the symphysis and not the pubic bone that is divided, but this is plainly hypercritical, and the suggestion that the adjective *pubic* may be added to designate the particular symphysiotomy would recall the fact that this would require two words to express what the single word (pubeotomy) gives us with equal precision. Besides this, in case of other possible symphysiotomies, we would have somewhat absurd terms of "great length and thundering sound" well fitted to "amaze the gaping rustics ranged around." Will the obstetricians permit us to use pubeotomy?

CORRESPONDENCE.

EXPERT TESTIMONY.

To the Editor of The Medical News,

Sir: An opportunity was lately given to me of witnessing the manner in which expert testimony is given.

Two prominent physicians, after a very superficial examination lasting about two minutes, testified upon oath to the insanity of a convict. I do not believe that these men are considered experts in insanity. I cannot believe that any conscientious alienist would attempt to give a positive opinion after so hasty observation, and especially in prison, where so many motives exist to cause a prisoner to feign mental trouble. But these physicians do not hesitate to give expert testimony, and the court considers the testimony expert.

Another case: A prisoner, suffering with eye-trouble, applies for pardon upon the ground that further confinement will destroy sight. The physician-in-charge calls a specialist in consultation, who certifies that confinement can have no special influence on the course of the malady. Another specialist is allowed to see the prisoner. He looks at him hastily, expresses a desire to see him pardoned, and writes out a certificate that further confinement will injure the eyesight The specialists are both of good standing in the profession, but the second was called by the prisoner's friends, and acted accordingly. Is not this knavery of the worst kind? A man who, knowingly, will use his profession for such ends deserves punishment.

Still another case was related to me but yesterday by a colleague: A young lady was thought by some of her acquaintances to be of unsound mind. Two very prominent alienists were consulted, who certified that she was of sound mind. But it was necessary to please relatives who wished or believed her insane, and, accordingly, these relatives summoned two other equally prominent alienists, who promptly pronounced her insane.

The public believes that experts can be obtained to swear to anything, and I believe that it is right. As long as the courts allow testimony to be partisan, and allow the defence and the plaintiff each to produce its witnesses, expert or inexpert, this testimony will be open to the charge of *influence*. The *court* must furnish the expert evidence. It must provide experts who will have no other interests to serve than those of truth and justice, and it must provide them with all the means necessary to carry out their observations. Criminals are to be adjudged insane only after most careful and continued watching and under varying conditions. Our court-rooms will then no longer have enacted in them medical farces in which any doctor who chooses can assume a title rôle and bring ridicule and dishonor upon the profession. The public needs protection, and so does the profession.

Very respectfully,

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Physician Eastern State Penitentiary.

"PUBEOTOMY," NOT "SYMPHYSIOTOMY."

To the Editor of The Medical News,

Sir: In the editorial article, "Celiotomy *versus* Laparotomy," in The News of the 15th inst., I entirely agree with you when you say in the concluding paragraph: "We should, however, take a decided stand against the misapplication of terms in our science."

The cutting of the junction of the two pubic bones, I humbly submit, should be called *pubeotomy*. This operation is now performed for the purpose of widening the pelvic diameter, thereby accomplishing, in certain cases of difficult labor, a safe delivery to both mother and child, as has been of late so well and so frequently demonstrated.

Now, *symphysiotomy* is a term that may be applied to any symphysis, and we have several of them in the human body: thus, the sacro-iliac symphysis is not far from the symphysis of the pubes.

The Greek word συμφύσις (from συμφύω) means a growing together, a natural joining of limbs (Liddell & Scott, Greek Lexicon); and symphysiotomy may require the context to explain to readers what symphysis has been the field of operation.

The name pubeotomy is illuminating; it is restricting in its meaning to the part cut; it is euphonic and in strict keeping with a proper scientific nomenclature.

The operation of making a section of the junction of the two pubic bones in certain difficult cases of labor is now attended with such extraordinary success, when practised under strict aseptic surgery, that it is a fixed procedure in our art, and has manifestly "come to stay." It is an immense advance.

Pray let it have a proper name—*pubeotomy*, from the Latin *pubes* (plural), and *temno*, I cut (Greek τέμνω).

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The Southern Surgical and Gynecological Association will be in session on November 15, 16, and 17, 1892, at Louisville, Kentucky. An interesting preliminary program has been issued. Dr. J. McFadden Gaston, of Atlanta, Georgia, is the president, and Dr. W. E. B. Davis, of Birmingham, Alabama, the secretary.

REVIEWS.

A TEXT-BOOK OF THE PRINCIPLES AND PRACTICE OF MEDICINE. FOR THE USE OF STUDENTS AND PRACTITIONERS. By HENRY M. LYMAN, M.D., Professor of the Principles and Practice of Medicine in Rush Medical College, Chicago. With 170 illustrations. 8vo., pp. 920. Philadelphia: Lea Brothers & Co., 1892.

THERE is no dearth of books on the practice of medicine, but there will always be place for more good ones. This book falls in the category of the good ones. The text is well written, fairly illustrated, and thoroughly up to the times. Modern pathologic conceptions are presented and the indications for treatment are in thorough accord with recent research and the results of the best clinical observation. The work is divided into thirteen parts. The first includes a consideration of the subjects of growth and development; regressive and progressive disturbances of nutrition; tumors; disorders induced by disturbances of circulation; contagion and infective diseases; inflammation; and fever. In the second part the parasitic and infective diseases are successively taken up. Then, in the remaining parts the diseases of the various systems are presented in the following order: Alimentary canal; liver, pancreas, peritoneum, and spleen; organs of respiration; organs of circulation; the blood; nutrition; kidneys and genito-urinary system; nervous system. Little of importance has been omitted, while most of the statements made can be accepted as authoritative. While cordially commending the many merits of the work, we have to point out a number of minor deficiencies which another edition will no doubt see made good. To stain tubercle-bacilli, it is recommended that aniline-oil fuchsin be used and that the decolorization be made with alcohol and nitric acid. Alcohol is objectionable in this connection, as the risk is incurred of decolorizing the tubercle-bacilli with other organisms present. We have found the best method of detecting tubercle-bacilli in cover-glass preparations to be that of Gabbett: first staining with carbol-fuchsin and then simultaneously decolorizing and counter-staining with a dilute aqueous solution of methylene-blue, to which 25 per cent. of sulphuric acid has been added. We have looked in vain for a recommendation of creasote in the treatment of tuberculosis; surely an agent so potent for good in the hands of many is worthy of some reference. It might seem as if the treatment of erysipelas by means of pilocarpine were scarcely known outside of Philadelphia, for it finds no mention in this book, as well as in some others. In our hands the subcutaneous injection of the remedy has reacted with almost specific certainty. Mercuric cyanide has likewise been most successfully employed by hypodermatic administration.

The chapter on diseases of the alimentary canal, otherwise so complete in detail, fails to refer to the condition known as nigrities linguæ, black tongue, or hairy tongue, a manifestation not so exceedingly rare, we believe, if specially looked for. Among the causes of obstruction of the esophagus, aneurism of the aorta is not mentioned; nor is the necessary caution as to the exploratory passage of a bougie when such a condition is to be suspected. The word appendicitis does not occur, while the condition is described as a part of typhlitis.

"Transportation of the abdominal organs" is spoken of, as if the condition were perhaps an acquired and not a developmental one.

Nitro-glycerin or other nitrite, with or without strychnine or digitalis, is of unquestioned service in fatty degeneration of the heart. The fact seems worthy of notice. So does the fact that strophanthus tincture has proved of undoubted value in the treatment of exophthalmic goiter.

The methods of blood-examination have not been given; nor in the description of leukemia has any reference been made to the results of the labors of Ehrlich, particularly in regard to the diagnostic significance of the various kinds of leukocytes.

In the section on renal diseases, it is stated of Fehling's solution that "when properly prepared, each cubic centimeter of the solution is reduced by five milligrams of glucose," but the formula for the preparation of the solution is not given.

A most commendable feature is the introduction of the subject of alcoholism. We doubt, however, if "acute alcoholism requires little treatment beyond a favorable opportunity for sleeping off the effects of the intoxication." This end is not always readily secured. The best results are perhaps to be obtained by emptying the stomach if there is any likelihood of its containing alcohol, and under any circumstances giving a mercurial followed by a saline. While morphine may be dispensed with, it is doubtful if bromide, with or without chloral, can. It is also a peculiar fact that the use of tobacco during convalescence from delirium tremens is almost certain to renew the attack. We are glad to note that hemorrhoids receive consideration, and that a section is devoted to the management of infective diseases.

The statement that acute cerebral infantile paralysis is probably dependent upon an infective cause is likely to mislead. Hemorrhage or thrombosis is the more likely explanation.

We could have wished that the terms cancer, phthisis, and Bright's disease had given place to carcinoma, tuberculosis, and nephritis, respectively.

The index could usefully have been lengthened. We cannot refrain from adding a word as to the orthography. If it be granted that it is unphilologic to universally use the vowel instead of the diphthong in such words as hemorrhage, anemia, ameba, *et al.*, it is both inconsistent as well as unphilologic to employ the vowel in one place and the diphthong in another. Thus, hemorrhage is spelled with the vowel, hemoptysis with the diphthong. We have no desire to be hypercritical. The strictures that we have made are offered in a most friendly spirit. It is our hope that a good book will be made better by strengthening its few weak places.

GENITO-URINARY AND VENEREAL DISEASES. By CHARLES H. CHETWOOD, M.D. (*The Students' Quiz Series.*) Philadelphia: Lea Brothers & Co., 1892.

IN the well-chosen questions and comprehensive answers of which this manual is composed, the special

field of surgery designated by its title is very fully covered. The book is well up to the times, and, in general, the descriptions of the disease-processes and their treatment are good and well expressed. Especially is this true in regard to that part of the book which has to do with venereal diseases.

It seems impossible, in literature of the class to which this manual belongs, to avoid a certain amount of inaccuracy in some of the replies to the multitude of questions given. This is doubtless due to the constant necessity to condense. We cannot refrain, for example, in the present instance, from taking exception to the descriptions of dilating internal urethrotomy and of external urethrotomy with a guide; and also from questioning whether the generous use of the aspirator recommended for recurring retention of urine due to enlarged prostate would meet with general approval.

Taken all in all, however, this number of the "Quiz Series" is very creditable, and, if used for the purpose for which it is intended, will find amongst medical students many friends.

A TREATISE ON HYGIENE AND PUBLIC HEALTH. Edited by THOMAS STEVENSON, M.D., F.R.C.P. (Lond.), Lecturer on Chemistry and on Medical Jurisprudence at Guy's Hospital; Official Analyst to the Home Office; and SHIRLEY F. MURPHY, Medical Officer of Health of the Administrative County of London. In two volumes, 8vo., with illustrations and plates. Vol. I, 1013 pages. Philadelphia: Blakiston, Son & Co., 1892.

THE editors, in superintending the preparation of these volumes, have had the coöperation of writers whose names speak for the character of their contributions.

The chapter on "Air," by J. Lane Notter, Professor of Military Hygiene, Army Medical School, Netley, is essentially similar in all its details to that in Park's *Practical Hygiene*, edited by Notter, and the same can be said of both, viz., that in a number of instances there is conspicuous evidence of unfamiliarity with recent work bearing upon certain branches of the subject. For example, in the paragraph on ozone (page 4), no reference is made to the important contribution of I'losva (*Bull. Société Chimique de Paris*, September and November, 1889), in which it was shown that much, if not all, of what have been supposed to be the characteristic reactions of ozone in the air are really due to nitrous acid, and that it is very doubtful as to whether the supposed allotropic oxygen exists in the free atmosphere at all.

On page 8 appears this statement: "That bacteria of various kinds produce disease *appears* (italics by the reviewer) now to be finally settled and accepted;" and continuing, as examples of those pathogenic forms that have been cultivated, are cited B. anthracis, B. tuberculosis, B. lepræ, and B. Obermeieri. If "B." means bacillus, as we suppose it does, then it is necessary to state that the organism described by Obermeier in the blood of relapsing fever is not only not a bacillus, but rather a spirillum or spirochetum, and has, moreover, not been cultivated. It is also doubtful if the lepra bacillus has ever been cultivated. The general tone of the paragraph conveys a feeling of doubt to the mind of the reader, and would lead a beginner to imagine that the etiologic rôle of bacteria in infectious diseases is still a matter of question.

Page 12: "The air of graveyards contains an excess of CO_2." This is not borne out by the results of analysis. On the same page credit is given to a statement that cannot be based on reliable evidence, viz., it is said that glanders and malignant pustule have been caught through the *effluvia* arising from decomposing carcasses.

From the description of Pettenkofer's method for the determination of CO_2 in the air (pages 23 to 25), it would be impossible for anyone not already familiar with the process to obtain results that could lay any pretence to accuracy.

For the bacteriologic analysis of the air the different methods are mentioned, and singularly enough that one which is now practically obsolete—that of Hesse—is the only one that is dealt with in detail. The method of Sedgwick, as described by Tucker, in Boston, which is probably the best, receives bare mention, and that of Petri but little more.

The crowning statement, however, is that with which the chapter closes; referring to the bacteria of the air it is written: "Dr. A. M. Davis, who has devoted much time to this subject, advocates a systematic description of the naked-eye characters of the different kinds of colonies as being likely to afford valuable indications, and has suggested that they should be described under the following heads." Then follow some of the points originally mentioned by Koch for the differentiation of various species of bacteria by the gross appearance of their colonies, directions that have been quoted in every text-book on the subject that has been published since the classical observations made by Koch between the years 1880 and 1883.

The article contains much that is good, particularly the section upon industrial diseases; and the suggestions respecting measurement of cubic space are most convenient. It is a great pity that it is not up to date in the points upon which particular stress has been laid.

The chapter on "Warming and Ventilation," by W. N. Shaw, F.R.S., is good. It is exhaustive in the theoretic details, and presents many points of practical value.

In the chapter on "Meteorology," by G. J. Symons, F.R.S., there is presented a description of the apparatus used in this department of work, with full directions as to the proper method of employing them. The chapter is well illustrated, and is a capital presentation of the subject.

Thomas Stevenson, M.D., F.R.C.P. (Lond.), presents an excellent monograph on "Water," including sources of water-supply; characteristics of water from different sources; storage of water; clarification and filtration; household filtration; pollution and self-purification of water; relation of impure water to disease; and methods of water analysis, microscopic, chemic, and bacteriologic. The chapter closes with an outline of the characteristics of good drinking-water. The article is strictly English, and, unfortunately, little or no attention is paid to work done elsewhere. The portion devoted to the bacteriology of water hardly comes from the pen of one familiar with the technique, or even the general considerations of the subject. It is the only part of the article that falls below the general high standard maintained throughout the balance of what is contributed.

"The Influence of Soil on Health," by S. Monckton

Copeman, M.A., M.D. Cantab., D.P.H., is ably presented, though his views upon the etiology of tuberculosis are at variance with those generally held at present. In his remarks upon dysentery no mention is made of the relation now believed to exist between certain forms of amebæ and this disease. The contributions of Kartulis, Osler, Councilman and Lafleur, Dock, and many others on this subject, have apparently not been seen.

The balance of this volume is devoted to monographs on Food; Clothing; Physical Education; Baths; Dwellings; Hospital Hygiene; the Disposal of Refuse; and Offensive Businesses; but space will not permit of our making more than a mention of them. It is impossible within these limits to present a review of the work as a whole, as each chapter forms a separate and distinct monograph by a special author.

THE ELECTRO-THERAPEUTICS OF GYNECOLOGY. By AUGUSTIN H. GOELET, M.D., Fellow of the New York Academy of Medicine, and of the New York Obstetrical Society; Vice-President of the American Electro-Therapeutic Association; Member of the Société Français d'Electrothérapie; Editor of the "Archives of Gynecology, Obstetrics, and Pediatrics." Two parts, pp. 194, 203. Detroit: George S. Davis, 1892.

THE never-ending discussions on the value of electricity in gynecology in the obstetric and gynecologic societies are not the only evidence of the interest taken in this subject, for Dr. Goelet's monograph is but the latest of four or five special treatises that have already appeared in the English language. The author's well-known command of his subject led us to anticipate an interesting and instructive treatise, and a careful perusal of the work fully justifies the expectations that had been aroused. Every statement made bears intrinsic evidence of personal mastery of the subject, and no one need fear to find signs of that free use of shears that some book-writers mistake for brain work. In no department of medical knowledge is there a greater need of this simple, direct method of conveying technical information, and the author is to be congratulated on his maintenance of a readable style throughout an unusually full and thorough discussion of the subject.

Part I is devoted to a consideration of the electro-physics and the electro-physiology of the several currents and to a description of apparatus. The portions relating to the faradic current are unusually full, and as satisfactory as the chaotic condition of exact physical knowledge of this subject now admits, the opinions of Tripier and Apostoli as to the value of coarse-wire and fine-wire currents receiving a more intelligent consideration than has been given them elsewhere. On the question of apparatus, so important to the beginner, Dr. Goelet has wisely chosen to speak plainly of his preferences, rather than permit his student-readers to wander among an unlimited display of ancient and modern pictures from which to make a possibly unfortunate choice. The electrodes recommended are also those known personally to himself, and as the author is a man of originality, working in a new specialty, they are largely devised by him. Minor criticism of instruments is easily made under such circumstances, and exception of this sort might be taken by the workers in this art to such an incongruous affair for the vagina as a clay-ball electrode covered with absorbent cotton. Of what advantage can this cumbrous and dirty clay be if it is to be prevented from coming in contact with the vaginal surface; and as the external surface is wet absorbent cotton, why not form the conducting-ball entirely of this material, wound about the carbon extremity and renewed for each application. Page 172 wisely retracts former statements as to the use of specially-prepared steel electrodes with the positive pole, and will doubtless make beginners more careful to adhere to the better rule of a platinum, carbon, or gold surface for all electrodes used within cavities as a positive pole. The sterilization of all electrodes before introduction within the uterus receives too little emphatic attention, considering the carelessness of which beginners are often guilty.

Part II is devoted to the special electro-therapeutics of certain diseases, and is divided into chapters on Disorders of Menstruation, Diseases of the Uterus, Diseases of the Appendages and Broad Ligaments, Pelvic Tumors, and minor memoranda. In this part the author is at his best, and has produced a series of wise essays and rational directions for treatment that will be found of great value to all that employ electricity in gynecology. The discussion of the subject of galvano-tapping in pyosalpinx is particularly unique and original. Tempered by the statement that older remedies are used conjointly with electric energy whenever thought advisable, these delineations of the use of strong galvanic and well-selected faradic currents in certain definite diseases should do much to stem the tide of surgical excess now directed toward the same class of affections. Taken as a whole, the work ranks among the best classes of special treatises, as well as having the advantage of being the latest in this particular field.

NEWS ITEMS.

The St. Louis Medical Era is the name of a new journal, of which the first number appeared in September. Dr. S. C. Martin is the editor.

The Third International Congress of Physiology will be held at Berne in 1894.

BOOKS AND PAMPHLETS RECEIVED.

The Effect of Diseases of the Ear upon the General Condition. By William Cheatham, M.D. Reprint, 1892.

Observations on the General Pathology of Cancer, Especially of the Breast. By W. Roger Williams, F.R.C.S. Eng. No. 2: "The Influence of Age." Reprint, 1892.

A Gas-producing Bacillus (Bacillus Aërogenes Capsulatus, Nov. Spec.), Capable of Rapid Development in the Bloodvessels after Death. By William H. Welch, M.D., and George H. F. Nuttall, M.D., Ph.D. Reprint, 1892.

The Relation of the Ocular Nerves to the Brain. By Charles Zimmerman, M.D. Reprint, 1892.

The Treatment of Epilepsy. By Frederick Peterson, M.D. Reprint, 1892.

Outline of a Plan for an Epileptic Colony. By Frederick Peterson, M.D. Reprint, 1892.

Progress in the Care and Colonization of Epileptics. By Frederick Peterson, M.D. Reprint, 1892.